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BUGATTI VEYRON

Our new 7-part in-depth car modelling series for 3ds Max, Cinema 4D LightWave, Maya & Softimage XSi kicks off this monthwith modelling the chassis!

ARTICLES
Snickers: 'Robosoccer' and 'Race' Spots for Russia

INTERVIEWS
André Cantarel & Herbert Lowis

GALLERIES
Javier Núñez, Till Nowak, plus more!

MAKING OF'S
'The Mirror' by Sergio Santos, plus more!

TUTORIALS
NEW!!! Bugatti Veyron Car Modelling Tutorial Series

Editorial

Hello and Happy New Year to all of you from all of us behind 3DCreative Magazine! We trust that you all had a great Christmas, and we hope you've all been readying yourselves for our all-new tutorial series, as our five new artists, each specialising in either 3ds Max, Maya, Cinema 4D, LightWave or Softimage XSi, have been working hard to kick 2008 off with a bang with a fantastic car modelling tutorial series on the supercar, the Bugatti Veyron (tutorials start on PAGE 125). A personal favourite of mine this month is the article on the two amazing Snickers TV ads: "Race" and "Robosoccer" (see PAGE 39). The guys from Unexpected in Germany have written a fantastic article on the making of the two adverts, which were created for Russian TV, and both the ads and the Making Of movies are available for download at the end of the article, so please don't miss them as they're really quite something!! We have two great interviews for you this month, as always, with André Cantarel and Herbert Lowis, as well as our regular Galleries and Making Ofs. If you were following Wayne Robson's Post Production tutorial, which started last month (ISSUE 028), then make sure you don't miss out on the finale in this issue (see PAGE 85). We'll have more to come for ZBrush users this year, so stay hooked throughout 2008 and we'll do our best to keep providing your eyes with treats and your skills with workouts. Enjoy this month's issue! Ed

Contents

Magazine Viewing Tips:

For optimum viewing of the magazine, it is recommended that you have the latest Acrobat Reader installed. You can download it for free here: DOWNLOAD NOW

To view the many double-page spreads featured in 3DCreative magazine, you can set the reader to display 'two-up', which will show double-page spreads as one large, landscape image: 1. Open the magazine in Reader. 2. Go to the 'View' menu, then 'Page display'. 3. Select 'Two-up Continuous', making sure that 'Show Cover Page' is also selected.

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CONTRIBUTING ARTISTS

Every month, many creative and talented artists around the world contribute to 3DCreative Magazine. Here you can read all about them. If you would like to be a part of 3DCreative or 2DArtist Magazines, please contact lynette@zoopublishing.com.

bugatti veyron

Our new car modelling tutorial series, Bugatti Veryon, brings a group of new talented artists to 3DCreative Magazine. These wonderful people are responsible for creating our 3ds Max, Cinema 4D, LightWave, Maya & Softimage XSi content this month.

CRAIG A. CLARK

Having worked on a wide range of projects, including games (Powerdrome, 8 Days, and Motorstorm), music videos (Muse: Sing for Absolution) and feature films (Goal 2, Harry Potter, Underdog, and The Golden Compass), Craig has a broad range of experience. Throw in commercials/product visualisations and the range is greater still!

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ALI ISMAIL

is a 3D artist who has worked on everything from Hollywood movies to TV commercials to games. He started out by doing the first 3D games in Jordan, then freelanced to clients such as Microsoft and VW, and has also worked for ILM on projects such as Indiana Jones and the Kingdom of the Crystal Skull whilst at Lucasfilm Animation Singapore.

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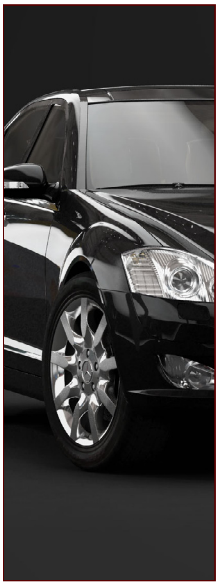

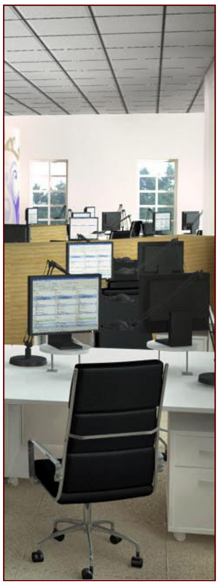

EMLYN DAVIES

is a 27 year old freelance 3D artist, based in Birmingham, UK. He has four years experience in Cinema 4D and has freelanced mainly at Cadbury as a 3D consultant for most of his professional career. Passionate about all things 3D, he constantly strives to develop his expertise and blur the boundaries between the real and the digital world.

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KRISZTIÁN SZEIBOLD

is a 3D Artist living in Budapest, Hungary. In 2000, he started using 3D software such as 3D Studio R4, and later 3ds Max and Maya. He's currently working as a 3D Artist on post-productions and commercials with Softimage XSI and Fusion. He hopes that he's going to be able to work on feature films in the future.

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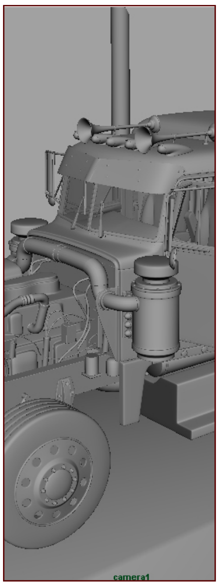

ANDREW HOBSON

has been using 3D software for about 4-5 years, mainly as a hobby, and enjoys developing his skills through various tutorials and courses. He's most proficient at modelling, especially vehicles, but is looking to develop his organic modelling, particularly humans/fantasy figures. He would love to work in the film or games industry (especially on the Nintendo Wii) so he can further develop his skills. andrewhobson2@gmail.com

Herbert Lowis

is an Indonesian working in Canada. Currently, he is employed full-time as a Character Artist, at BioWare. His responsibilities include creating in-game and high-res models and textures. In his spare time, he enjoys both digital and traditional sculpting.

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Gavin Goulden

is a Freelance Character Artist based in Vancouver, BC. He has over 3 years of experience ranging from mobile to next generation games, and specialises in creating high detailed characters. He has contributed multiple tutorials to the community, and can often be seen posting on game art forums and participating in game art competitions. More of his work can be seen at his online portfolio.

www.gavimage.com gavin@gavimage.com

Image by Unexpected Postproduction

Manuel Pérez Escudero

considers to have been drawing for 7 years now. He studied at the school of arts in Sevilla, and then went on to do a course in 3d Studio Max. His main interests have always been cinema and comics. "Be sure tomorrow what you can do today."

http://mapestudio.blogspot.com/
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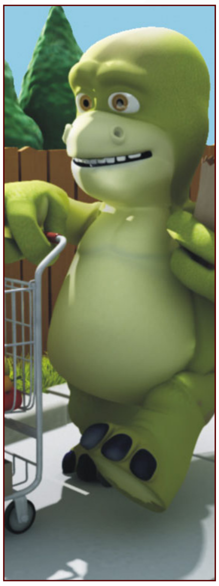

Vladimir Venkov

is originally from Bulgaria, but currently resides in London, UK. His main interests are sculpting, drawing, and art in general. The tools he uses most are Mudbox, ZBrush, Softimage XSI, Painter, and pencils and paper.

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Alexander Kiesl

is one of the Managing Directors of Unexpected Postproduction. He started CG at the age of 14 with 3D Studio on MS DOS. From 2000 he studied animation at the Filmakademie Baden-Württemberg and finished in 2005 with the award-winning short, "Racing Beats". Since 2005 he has been part of the directing duo, Alex & Steffen.

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Steffen Hacker

started film-making at the age of 15, and soon became one of Adobe's top Software Promoters for profesional compositing solutions. He also studied at the Filmakademie and graduated together with Kiesl, co-directing "Racing Beats". Since 2005 he has been part of the directing duo, "Alex & Steffen", and is directing international VFX heavy commercials.

www.unexpected.de

Wayne Robson

is a freelance digital artist & professional author living in Durham, England, behind a keyboard. He's sure he had a life at some point, but isn't quite sure where it disappeared to (he's quite sure he did have one at some point, though). Wayne's DVDs are available through Kurv Studios, including his series 'Get into ZBrush'.

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Would You Like to Contribute to 3DCreative or 2DArtist Magazine?

We are always looking for tutorial artists, gallery submissions, potential interviewees, Making Of writers and more. For more information, send a link to your work here: **lynette@zoopublishing.com**


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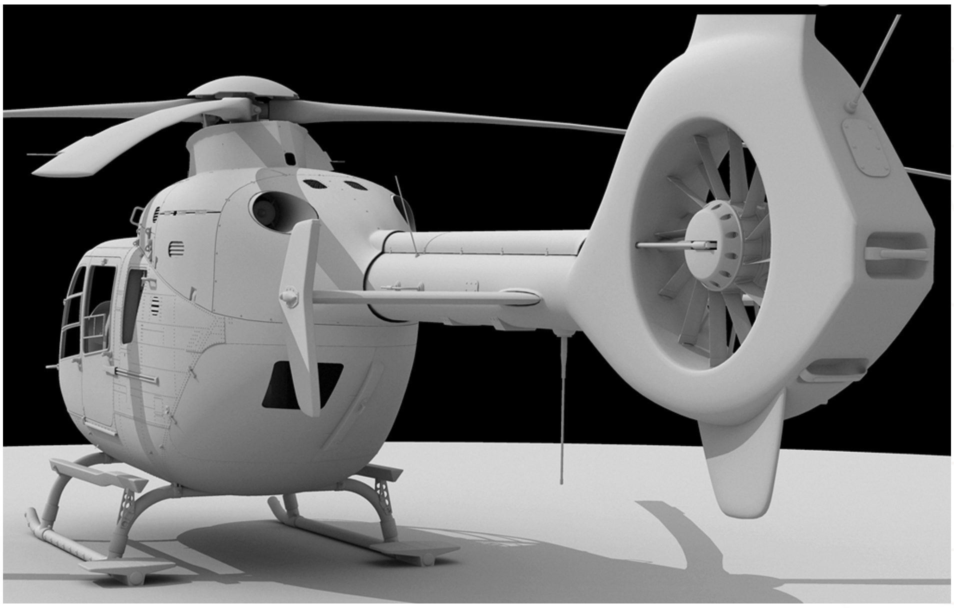
"ALL THE SCRATCHES, DIRT AND BUMPS HAVE A REASON WHY THEY ARE THERE..."

ANDRE CANTAREL

André Cantarel is a freelance artist based in his home country, Germany, where he has been working for several years now. In this interview, Cantarel reveals what it is that fascinates him about machinery and man-made objects...

ANDRE CANTAREL



Your website shows both a 2D and 3D gallery André, but interestingly your treatment of the two mediums is very different. Can you tell us a little about the reasoning behind your different approaches?

Doing 2D paintings can be considered as a short vacation from 3D. After doing all the stuff like modelling, unwrapping and so on, I love to do something which is not so heavily technical. What I like especially is that the painted images are not so clean and "cold" like a lot of the renderings. I hope I have some more time in future to improve my painting skills, especially on the anatomical side.

On the subject of anatomy, there is evidence of characters in your 3D renders albeit incidental to the main theme. How challenging do you find them compared to modelling machinery?

Ha ha, now you got me! Modelling organic meshes like humans, for example the pilot in the Pave Hawk, is a bit of a difficult for me currently. I think it's down to the lack of practice in this area, but I'm going to change this as I'm very interested in doing more things which I can bring/animate to life. So at the moment, creating a half-believable human is a much bigger challenge for me than building a whole helicopter!

Image courtesy of Optix Digital Pictures GmbH (www.optixdigital.de) and Neue Sentimental Werbefilm GmbH, Vienna, Director. Philipp Stölzl / Artist. André Cantarel www.cantarel.de OPTIX DigitalPictures

Much of your 3D work is of a mechanical nature. What is it that fascinates you about machinery and man-made objects?

The fascination of mechanical apparatus and especially aircraft machinery, for me, is the compromise between the intention for which it was built for and the range of possibilities dictated by nature and its physical structure. On one side these rules are very strict, and

on the other they still allow a wide range of interesting aircraft design starting from all kinds of helicopters to aircraft, which apparently can't fly when you look at them, but they do.

Your two helicopters and jumbo jet are very realistic with a closely observed attention to detail. What proved to be the most difficult parts to get right and which was the most challenging of the three?

The very first difficult, or more time consuming, part is the research. Often there are so many sub-types of aircraft which can be confusing in the beginning. You have to compare so

many photos to differentiate between them and to make sure about which version you're currently looking at. The second challenge for all three was getting the right shape of the hull. "Right shape" here means not a shape which roughly looks like the right form – it really has to fit (for sure, it'll never be a CAD version!). Very often the arrangement of the windows on a helicopter's cockpit just look the way they do because they were cut out of a special base form. If you model this form too approximately, there will always be a window too big compared to the others, or a door that looks right from the side but not in front view and so on. Besides the base shape, there were other tasks which were also time consuming...

The Boeing-777, for example, needed a rigged landing gear as the camera was planned quite close during the landing process, looking right into the opening wing (all flaps and air brakes coming out). I had to study a lot of photographs to understand the mechanism. As the Pave Hawk was my first helicopter, the challenge was understanding the swashplate and the way it works. The Eurocopter EC135 didn't pose any particularly difficult problems, except for the shape of the hull.

You've highlighted comparing "so many photographs" to be sure about getting the details right. Does this kind of accuracy ever feel like a burden to your creative process, or do you see it as a series of technical challenges that are rewarding to overcome?

It is not really a burden to compare all the photographs. During this process I often discover new details that I like and which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improve the model later. As there are so many modifications on each single vehicle, you can choose between the good looking details to a certain degree. Also, you see many different situations of the real model which inspires you a lot regarding perspective and lighting.

What do you think are the crucial aspects in getting your renders to look so realistic?

I think it is the amount of detail in the 3D geometry and their influence regarding the textures and shaders. Around rivets you can find a little bit of dirt, the lack of paint on top of the rivets if people can put their feet on them (like the floor inside of a helicopter), some scratches where mechanics use their tools, cords from rain and dirt, small gaps and bumps because a door has been opened several thousand times, and so on... There are so many influences which show that a machine was out there for a long time and this makes it a bit more believable.

What methods do you use to get the dirt and scratches in all the physically correct areas, and does it involve unwrapping all the geometry and texturing the wear and tear to specific areas, or do you use masks and generic metals, for example in a more procedural fashion?

I'm really a friend of hand-painted textures and I think it is the only way to get a certain degree of realism. Procedural textures are very comfortable to use because you don't have to open Photoshop and start painting something, but they also look like it. For sure, I use them as well, but only on stuff which is far away from camera, or I use them for the displacement of a rock, like as can be seen in the underwater scene in my gallery. On my models, I don't use them at all, except maybe for some small, subtle bumps, but even these should be better painted ones. All the scratches, dirt and bumps have a reason why they are there and this can only be fully controlled by painted textures, in my eyes. For placing them in the right position, you have to unwrap all the parts of the model. All faces have their own texture space, and if you unwrap all of them in the same scaling and place them accurately, it is easy to paint on them later. I'm

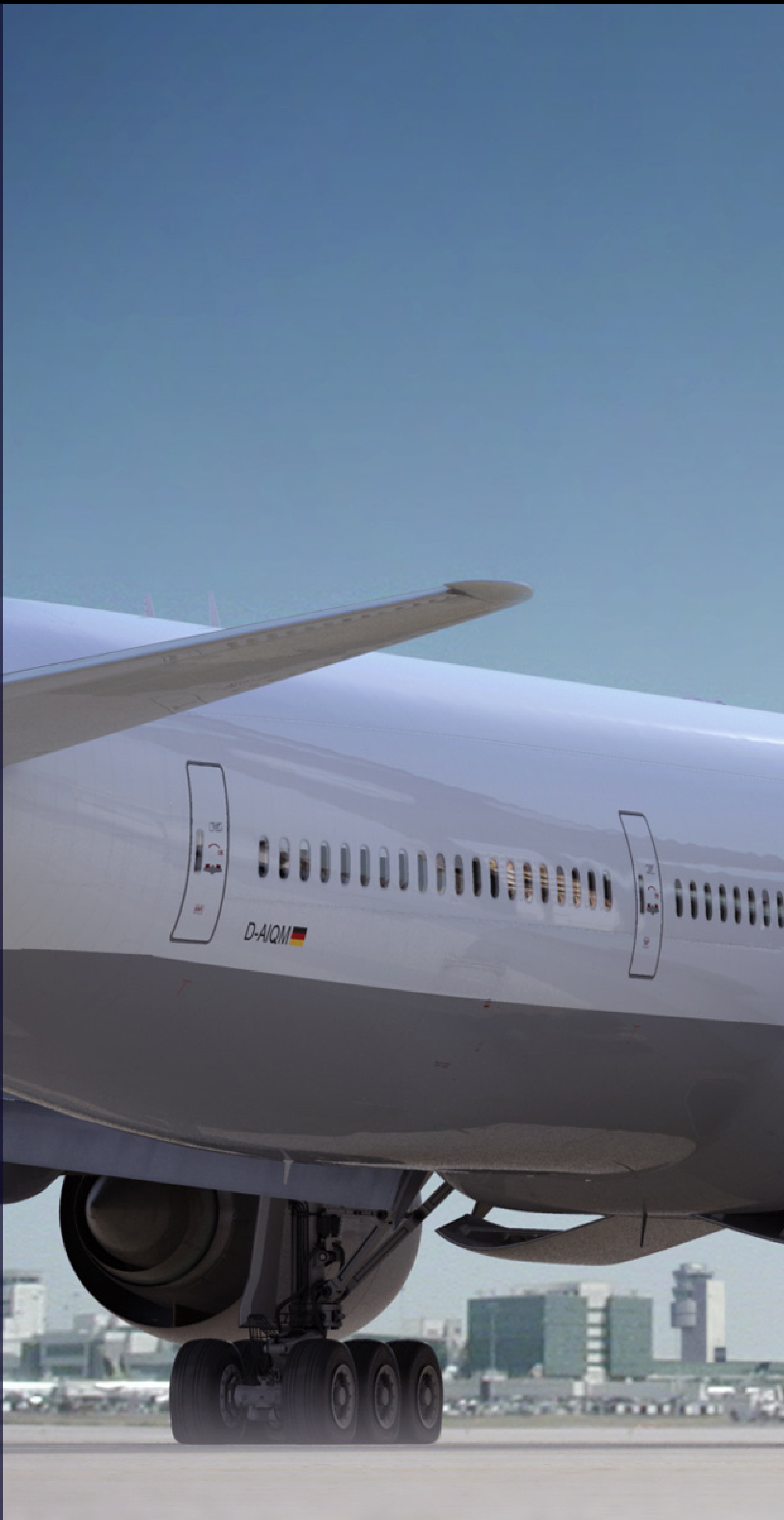


Image courtesy of Optix Digital F

Pictures GmbH (www.optixdigital.de) and Neue Sentimental Werbefilm GmbH, Vienna, Director: Philipp Stölzl / Artist: André Cantarel www.cantarel.de OPTIX DigitalPictures

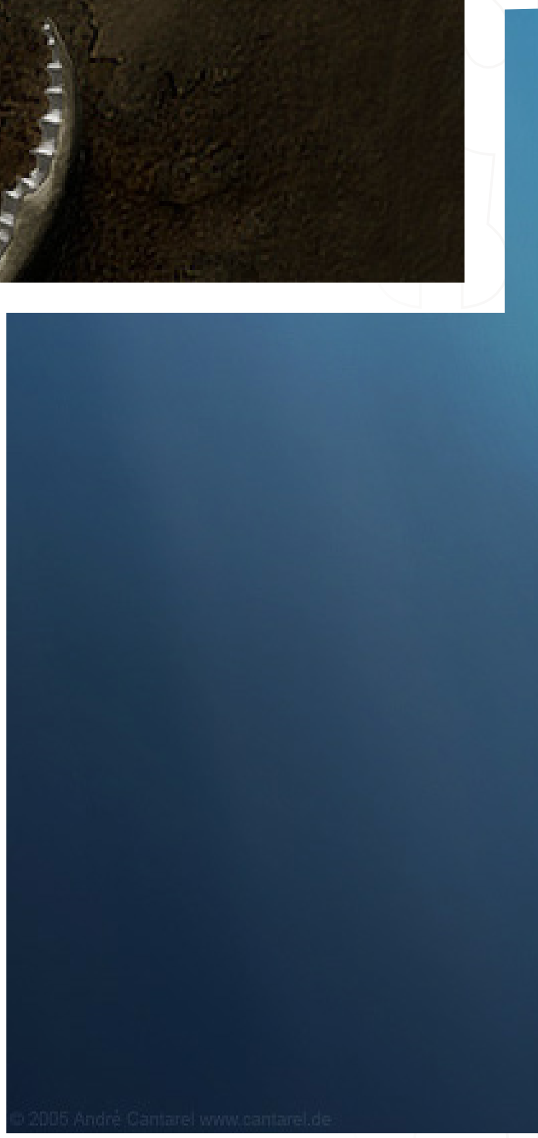
sure there are people out there who can achieve stunning results with procedural textures and I'm open to every new experience.

I notice that there is an underwater scene in your portfolio and a WW2 submarine anti-aircraft gun. Is this an indication of a wartime scene that we may see some time in the future?
Indeed there was a wreck of a WW2 submarine conning tower, including the anti-aircraft gun planned between the rocks, but there were so many other things to do it was never finished. I hope one day that I have enough time to make something out of it. The gun itself was also more intended to be a texturing exercise initially, so it is not very accurate.

Which 3D package do you find the most effective, or do you use each for different tasks?
At the moment, 3ds Max is my personal and most effective tool as it is the package I've been using for years now. But currently I'm also learning Maya to benefit from all its very great functions.

Which renderer do you use in Max and how much of your final renders involves post production work in Photoshop?
The renderer I prefer is finalRender Stage-1, as it gives me the amount of control I want to have. It can be so-called "physically correct", but if you don't want it then you can tweak everything and mix "incorrect" stuff into it, as I always do to get the result I have in my head. I always try to get the most final result out of 3ds Max, but for sure there is some post production work done in Photoshop, like adjusting the colours and contrast.

Are there any other vehicles that you really want to model but just haven't found time to do, yet?
Ha ha, yes, for sure! There is the Canso



Catalina, a very old boat seaplane in a yellow/red painted fire fighting version, the CH-53 “Super Stallion” helicopter, and... many more! But first I have to find the time for them... And besides this mechanical stuff, I’m also very interested in nicely rendered cartoon characters. This area would also be a nice challenge!

Finally, can you give us with some tips on getting a realistic and convincing lighting solution, and what are the staple methods you use regularly in your work?

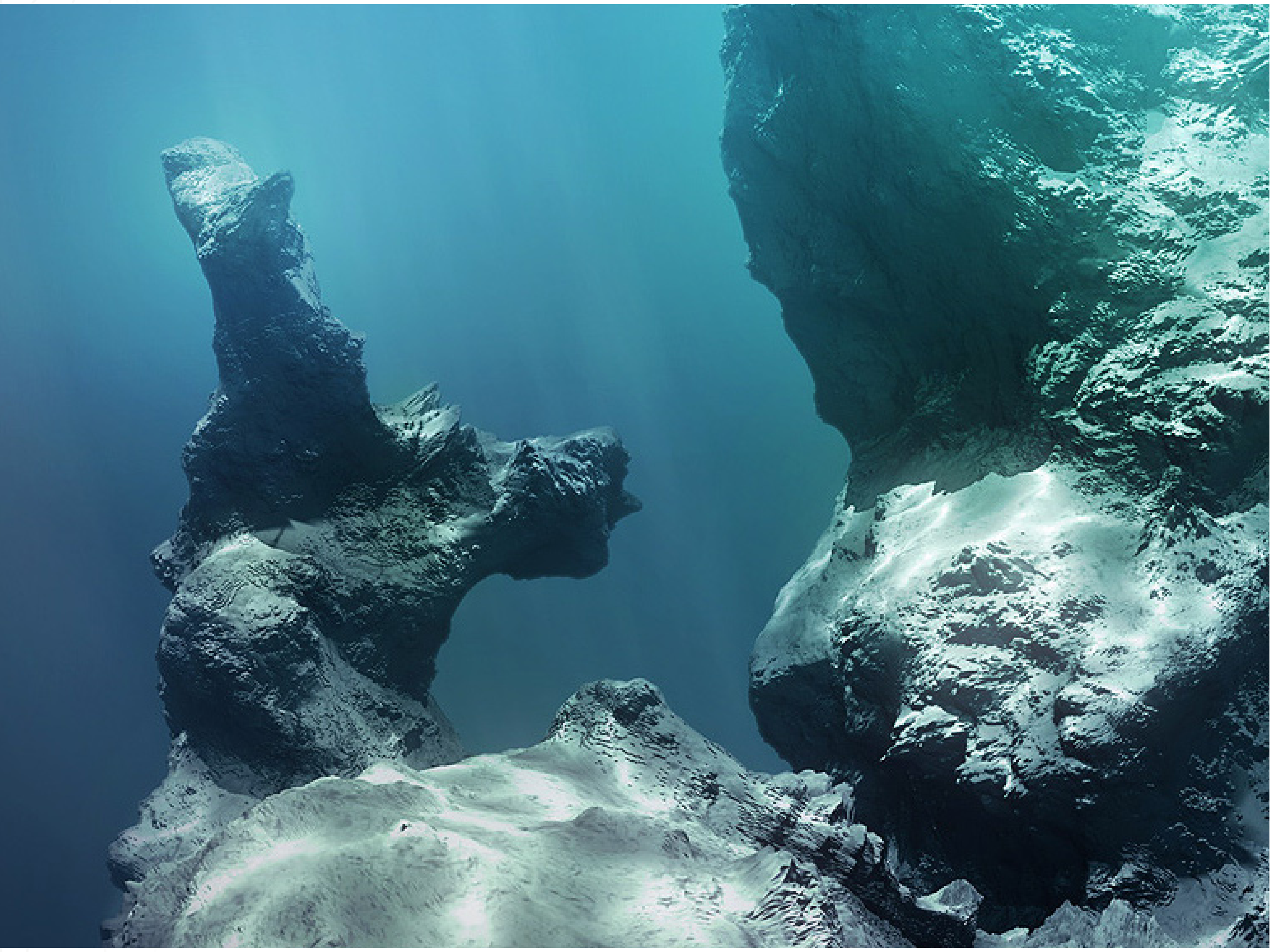
Hmm, that’s difficult to answer... Generally, it really depends on the stuff you do. It is always good to study panoramic photographs of landscapes to see the colours in the sky which illuminate your model, besides the sun. Using these colours, maybe generated with the help of a physical sky system, gives you a good start. If you want to break up the perfectness of this sky, you can mix a similar HDRI into it to get some variation.

There’s not really a special staple of methods I use, as all the tasks differ from each other. But something that I regularly use is my very big collection of textures and Photoshop brushes I have gathered and generated over the years.

André Cantarel

For more work by this artist please visit:
www.cantarel.de
Or contact them at:
andre@cantarel.de

Interviewed by: Richard Tilbury

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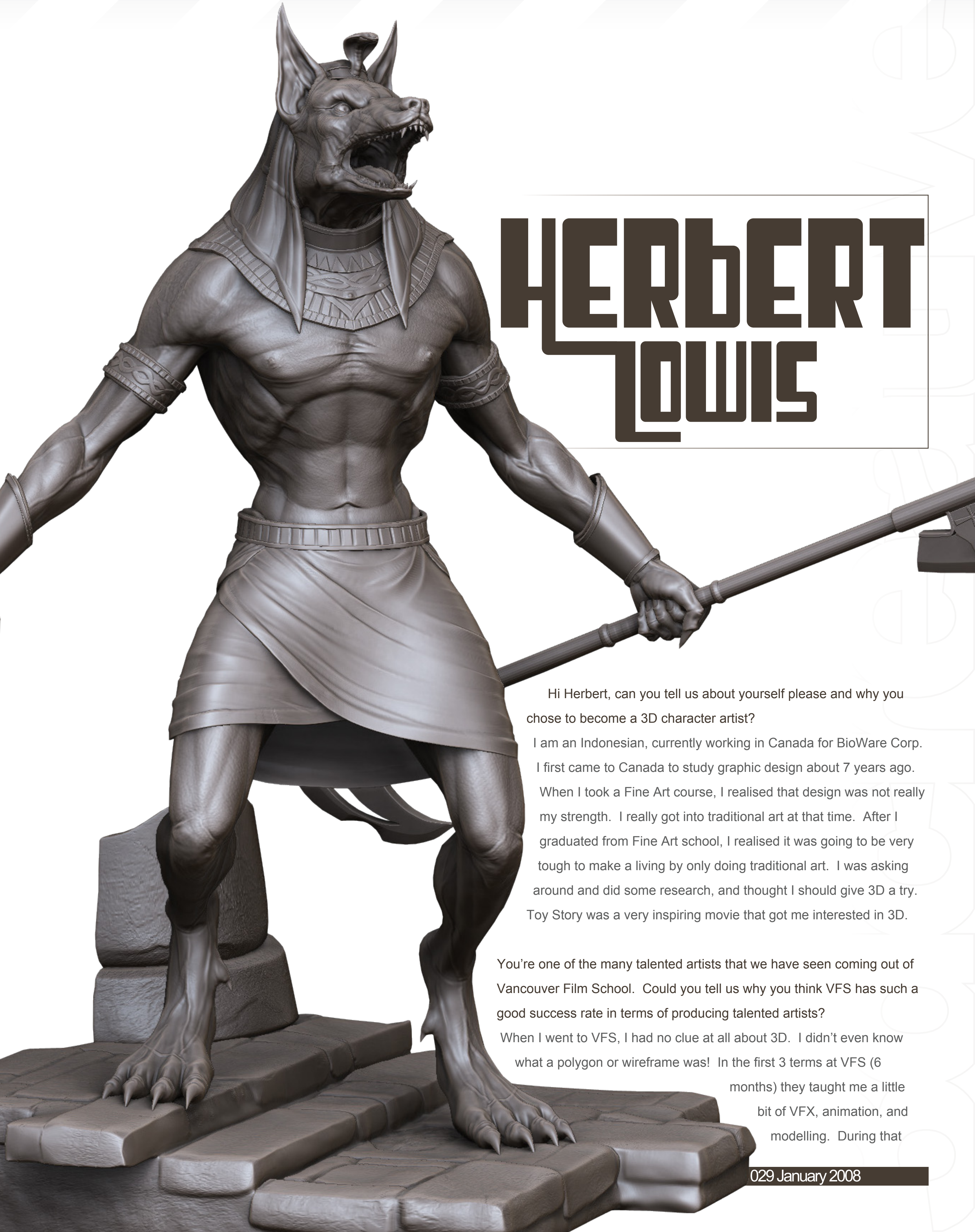
HERBERT LOWIS

"...I KNEW THAT I WANTED TO BE A MODELLER. I PERSONALLY THINK THAT, BECAUSE THERE IS SO MUCH COMPETITION IN VFS, IT REALLY FORCES EACH STUDENT TO PUT HIS/HER BEST EFFORT INTO THEIR WORK."

From Vancouver Film School to working for one of the best games companies around, Herbert Lowis takes time out to chat to us about how it all started for him and his dedication to becoming one of the best character modellers around today...



HERBERT LOWIS

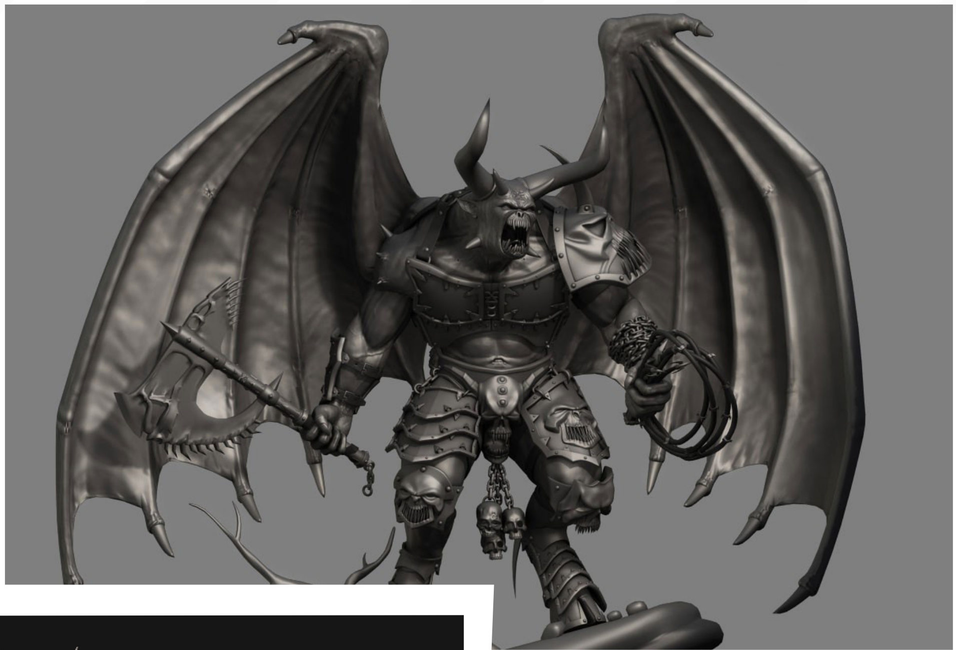
Hi Herbert, can you tell us about yourself please and why you chose to become a 3D character artist?

I am an Indonesian, currently working in Canada for BioWare Corp. I first came to Canada to study graphic design about 7 years ago. When I took a Fine Art course, I realised that design was not really my strength. I really got into traditional art at that time. After I graduated from Fine Art school, I realised it was going to be very tough to make a living by only doing traditional art. I was asking around and did some research, and thought I should give 3D a try. Toy Story was a very inspiring movie that got me interested in 3D.

You're one of the many talented artists that we have seen coming out of Vancouver Film School. Could you tell us why you think VFS has such a good success rate in terms of producing talented artists?

When I went to VFS, I had no clue at all about 3D. I didn't even know what a polygon or wireframe was! In the first 3 terms at VFS (6 months) they taught me a little bit of VFX, animation, and modelling. During that

period of time, I knew that I wanted to be a modeller. I personally think that, because there is so much competition in VFS, it really forces each student to put his/her best effort into their work. Self motivation is also the main key to becoming successful at VFS.



With having no previous experience with 3D when you first started VFS, did you find it very daunting being there, or were the classes geared to all levels?
Yes, I have to admit that the first couple weeks were pretty rough for me. But I didn't want to give up that easily, so I stayed after school and kept asking my colleagues a lot of questions. I was very lucky that a few of them already had some basic 3D knowledge (and were willing to stay late with me to teach me). After a month or so, I started getting a lot more comfortable with the program.

You're currently employed at BioWare Corp. Could you tell us how this job came about and why you decided to leave Infinity Ward?
I have always been interested in BioWare Corp. I personally think that BioWare is one of the best game companies in Canada. I really enjoyed working at Infinity Ward - everybody is extremely talented there. My working Visa expired, so I had to leave the US.

So in terms of working environments, how would you compare the two?
I think they are both pretty similar. They are all game lovers, and really love what they do at work. Both companies have very talented artists who are very fun to work with.

Could you tell us what you're working on at the moment?
I am currently working on "Dragon Age." It is supposed to be the next-gen, Baldur's Gate.

So what sort of things are you doing for this game?
I am currently responsible for high res modelling

(for normal map gen) and in game modelling, texturing and UV-ing. I model weapons, armour, creatures and heads. It depends on the milestone requirement.

Your latest pieces of work in your portfolio are some of the characters from the Metal Gear Solid series of games. Why, out of the many characters from the series, did you choose these two, and how long did it take you to create them?

I am a huge fan of Metal Gear, although I am very embarrassed to admit that I haven't finished the third one, yet. I am planning to make the entire crew of Fox Hound. Each character took me about 1½ to 2 weeks to do, in my free time.

So after modelling the crew of Fox Hound, what's the next personal project we can expect to be seeing from you?

It depends on what motivates me later. But most likely it is going to be creatures.

As well as being an amazing 3D character artist, you're also a very accomplished sculptor. Do you think being able to sculpt helps you in the creation of your characters?

Definitely! The most valuable thing I learn from traditional sculpting is showing weight and mass in character.

Through out an artist's career, they will always look at artwork by their favourite artists, whether it's for research or inspiration. So which do you find *your* inspiration from?

Wow, this list can go on for pages! CG forums are usually the first place I go to get inspiration.

Games as well! I love buying art books for games. I don't know how many times I have read through the art of God of War and Gears of War, but all the pages have come out! Concept art books and movies are also my main source of inspiration.

So away from modelling and sculpting, and art in general, what other things do you enjoy to do in your free time?

Gaming! I'm a huge fan of games. Besides that, I really love miniature modelling (WW2 tanks specifically).

Well it has been a pleasure getting to know a bit about you. One last question before we finish: what has been the most influential piece of advice that you have received throughout your art career?

Gather as much references to whatever project you are into, as possible. Keep observing and practising - you can always get better!

Thank you very much for your time.

HERBERT LOWIS

For more work by this artist please visit:
http://artbylowis.com
Or contact them at:
burger_son@hotmail.com

Interviewed by: Chris Perrins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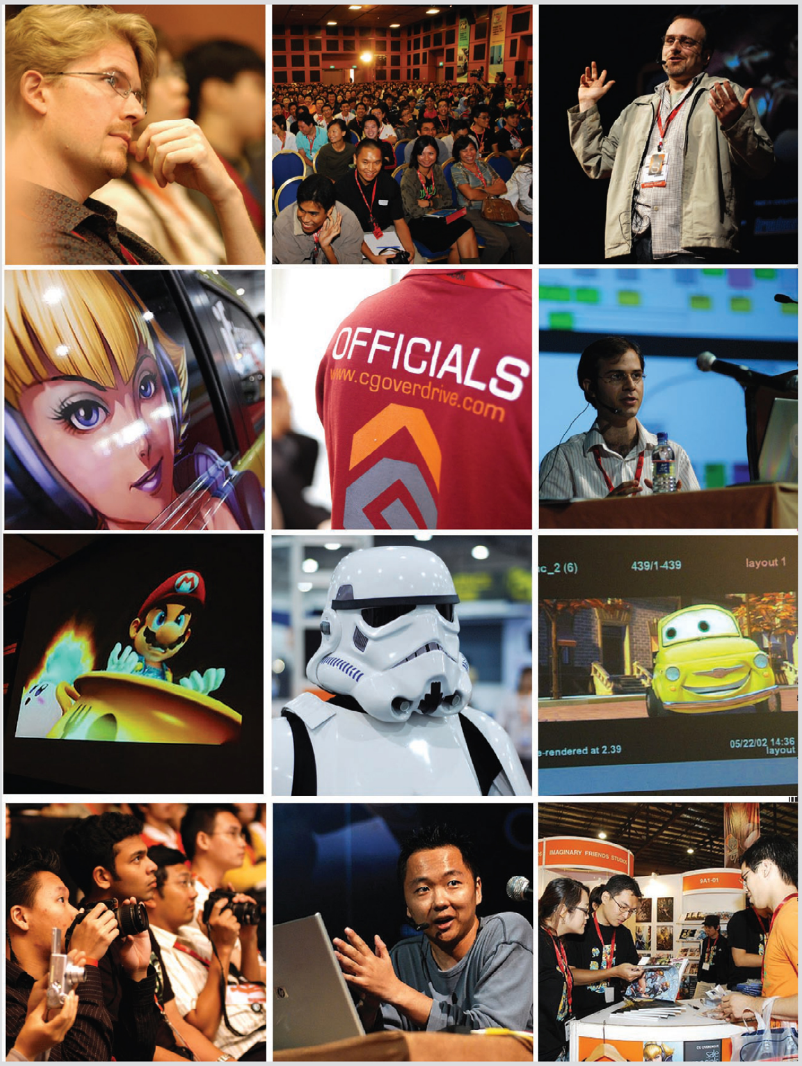

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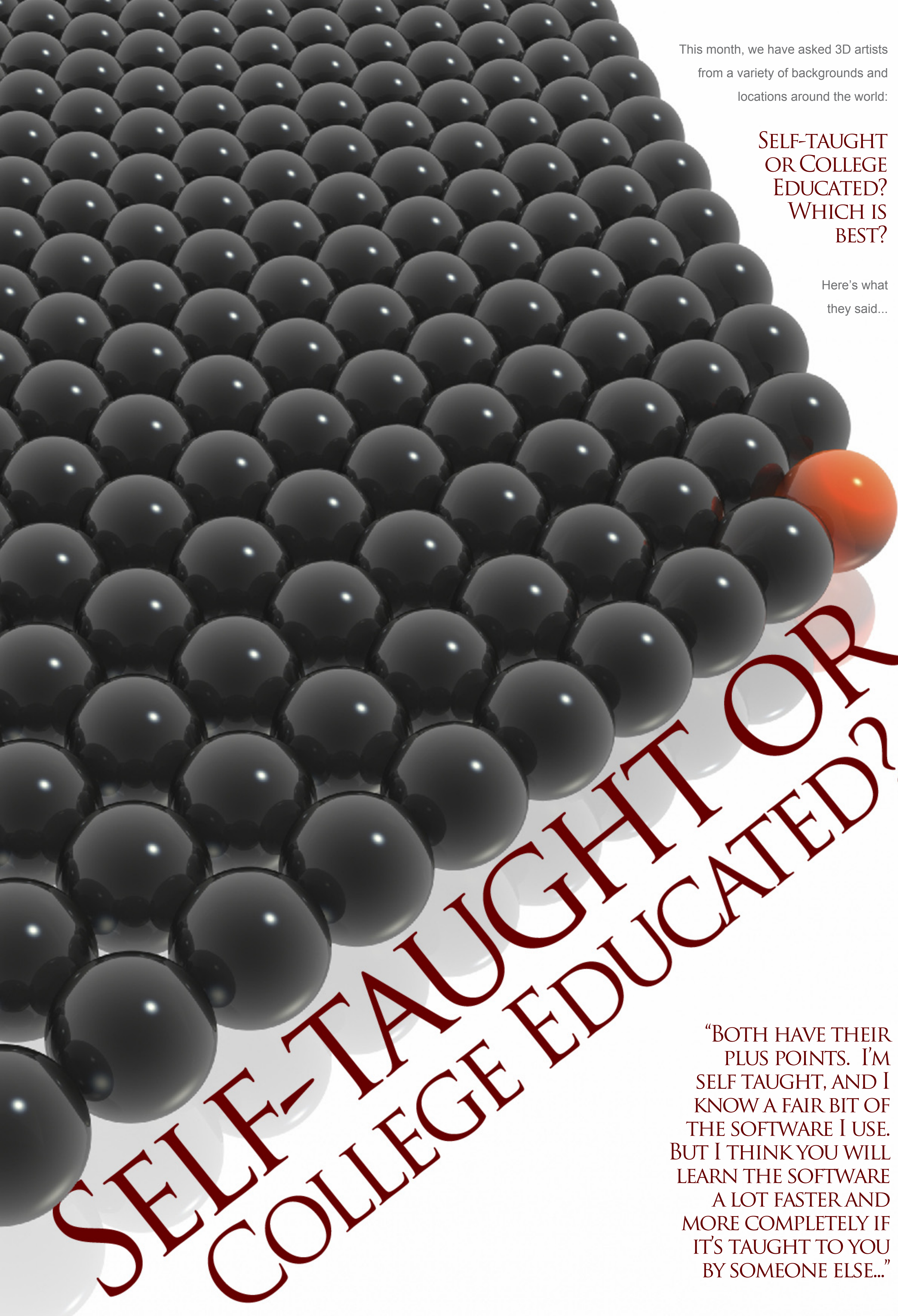


This month, we have asked 3D artists from a variety of backgrounds and locations around the world:

Self-taught or College Educated? Which is best?

Here's what they said...

Self-Taught or College Educated?

"Both have their plus points. I'm self taught, and I know a fair bit of the software I use. But I think you will learn the software a lot faster and more completely if it's taught to you by someone else..."

Self Taught or College Educated? Which is Best?

Adrian Tiba

System Engineer, SC Infologic

Oradea, Romania

"Self taught, although I think college education is better and faster."

Ali Ismail

Digital Artist, Lucasfilm Animation, Singapore

"I am self-taught, but I recommend going to a college to save learning time; get right into production proven techniques and obtain very good relations, which will help a lot, but one thing has to be mentioned that if you cannot manage to go to a college with promising student demo reels, then save your money and learn things on your own. There are resources available on the Internet, and on training DVDs which you can purchase. Web forums can get you a long way – the bottom line is that it's all about your demo reel, nothing else!"

Anders Lejczak

Project Manager, Framfab, Malmoe, Sweden

"I have a University degree but I'm self-taught in the field of CG. A mixture is probably the best. Self-taught people have the commitment and interest, but that has to be complemented with some level of theory and insight in best practice."

André Holzmeister

"I am self taught, but I believe both have their strong points. Self-taught is good because you will never forget what you tried so hard to accomplish, and you learn so many different ways of doing the same thing. You are more logical and a better problem solver. But educated, you learn the best way of doing things. So I believe both are very welcome."

Image By Eric Provan

Andre Kutscherauer

3D Designer, Studio Messslinger Gmbh

Munich, Germany

"Self-taught! Only if the fire comes from inside you can get somewhere!"

Anna Celarek

Student, Vienna

"I'm self-taught, and I think it's better because that way you can choose yourself what you learn and what not, so you have more fun with

Image By Anders Lejczak

it and you're more free with what you do. On the other hand, education can force you to learn certain things that you perhaps don't like but that you will need, so it also has its advantages."

Bogdan

"In my opinion, college educated is best. Just to give you a few examples, which in my opinion are relevant for our discussion. Until now, I have used some of the most important principles, laws and equations of physics, especially for fluids and dynamics and particles. Let's discuss a little bit about them in connection with 3D. One of the tools that Maya uses for fluids is the Stokes-Navier equation, which is fundamental in the Physics of Fluids and Thermodynamics. You just have to adjust a few elements of this equation and you'll have oil, water, muddy water or lava simulation, and the list could go on. You can have turbulence, vortex, viscosity, and so many more other attributes.

If we're talking about lighting and rendering, then we have to deal here with elements like reflection, refraction, ray tracing, photons, photons' energy, and so on. For global illumination you must take care of the photons' energy, bounciness, absorption, and so on. But there are many more effects to take care of, like caustics, final gathering, and so on. In dynamics we have friction, bounciness, Mass Center, Mass, momentum, and so on. All these elements are making the dynamic simulation look realistic, or like low gravity. Not to mention the power of scripting for simulating effects, like tornados for example, or an army of animated skeletons or droids!

In animation, if you want to do a rotating wheel, then it's much more simple just to write an expression with the movement equation for that wheel, which is dependent of the wheel's radius, rather than adding keys and then going into Graph Editor and start tuning those curves and tangents. Of course, you can adjust this expression as much as you want by adding various functions, like 'randomize' if you want to have irregular motion.

All the elements I've mentioned above are exactly like in real life, and if you understand what's happening around you when you go to work or just walk on the streets wondering about the global warming, then you'll create everything you want in 3D, whether the final result should be photo realistic or fantasy, cartoon and so on. So I think "College Educated" is very useful, especially because 3D is trying to create new worlds or trying to re-create the real world. Or, for this, you need to understand rather than "feel" what's happening in the real world. Of course, you can do everything by yourself using your "nose" or the mighty Internet, but if you hope that someday to play in the "highest league" of 3D, then I think you need a bit more of a stronger base."

Cesar Alejandro Montero Orozco

CG Artist & Freelancer, Digi-Guys

London (UK) and Mexico

"I studied Computer Engineering, but after graduating I realised it didn't excite me enough. That happened even after having great job offers to program black-boxes for airplanes. I was already self-taught in many things, and went to VFS for the Digital Design Diploma.

Schools are good to learn the theory and smart approaches in the craft. However, most of what I know is self-taught. If you are not self-taught, sometimes it means that you don't have enough interest. Nowadays, you don't really need a school in order to create great pieces of work. They do, however, work great as guides, and help you to eventually get a job."

Dana Dorian

Director, Axis Animation

Glasgow, Scotland, UK

"I'm college educated. I have a Masters in Fine Art. Which is best? I think that depends on the individual, but generally I'd say more good work comes from people who have been taught by someone."

Daniel Vijoi

"Definitely, an artist should have a school behind them, even if they are very talented and are making a huge amount of research at home. In my case, I didn't follow a college education, and I always feel that I started in this industry with a huge step backwards, in relation to the others. In a college, you can correctly learn the basics of art and stuff that will radically improve your work."

David Revo

"I'm mostly a self-taught artist. So, I can't really have any opinion about college education."

Eric Provan

3D Modeller, Sony Pictures Imageworks

LA, USA

"I graduated from Full Sail in June of 2005. It was an accelerated program, and it worked out perfect for me. Now, that's not to say I don't believe someone can be self-taught. The good ol' Internet has a wealth of information, and with the right kind of motivation, someone can certainly pick up the skills needed to work in the game/film industry. I guess what I'm saying is that you have to find what fits *you* best."

Eugenio Garcia

3D Illustrator & Animator, GrupoW

Saltillo, México

"Both are best. It is better if you can combine both. Go to college in the morning, and learn by yourself in the afternoon."

Gustavo Groppo

General 3D Artist, Mamute Mídia

São Paulo, Brazil

"I don't like to compare these two ways of learning, because I think that both complement each other, in spite of knowing many great self-taught artists that never entered in a college or training. College gives you the theory and some practice, but the major part of the experience is acquired working, where we are needed to make decisions and create solutions by ourselves."

Hasraf Dulull

Visual Effects Artist, The Moving Picture Company, London, Soho

"Self-taught is how I learnt, which is great because you learn from your mistakes, but being educated by a good mentor is great because it's faster!"

Jure Zagoricnik

Web Developer & 3D Freelancer, Hal Interactive & 3D Grafika, Kamnik, Slovenia

"Self-taught."

Liam Kemp

"Self-taught. Though I did go to college to study illustration (but really I taught myself there). In my experience, there is no substitute for self-

Image By Petra Stefankova

motivated and self-directed projects, as the success of these is a measure of strength of character."

Mathias Koehler

Freelance 3D Artist & Industrial Design Student, Braunschweig, Germany

"There is no difference. In the end, it comes down to your personal commitment."

Matt Westrup

"Self-taught."

Michael Seidl

3D Artist, Modelling & Rendering, www.michaelseidl.com, Vienna, Austria

"For the basic program knowledge, I personally think that a college education will bring you forward faster than teaching yourself everything alone (like I did). But, after that, there comes a time when you have to discover your program of your choice by your self. My slogan is: you don't have to know everything about your 3D application program, but in case of questions you have to know where you can find the answer."

Neil MacCormack

Freelance 3D Artist, Bearfootfilms

Geneva, Switzerland

"Self-taught. Definitely, for exposure to different software and environments and techniques, I would choose a college education."

Nicolas Collings

"It depends if you can teach yourself, be organised and be extremely perseverant. Self-taught can be nice and fast. But, if you need some structure around you, I'd say definitely college educated. On another hand, it's always good to have a degree in your pocket!"

Pedro Mendez

"Self-taught. In my personal experience, self-taught has worked perfectly in most of the art fields I've been involved with."

Image By Adrian Tiba

Pete Sussi

"I went to school for Advertising Art. All my 3D work has been self-taught. What's best? I suppose both have their benefits: school, because it's an atmosphere that is concentrated, with help nearby; self-taught, because I really feel there is something spiritual about having the focus to stay with something this hard and seeing it through. Remember when you cared more about "hanging out" at school than the work? Well, self-taught is only done through constant self motivation. If you aren't motivated, you're not going to make it. And if you are motivated, you'll excel! There is a wealth of learning material online that makes becoming self-taught easier these days, too."

Peter Sanitra

3D Artist, ImagesFX, Prague, Czech Republic

"Self-taught."

Petra Stefankova

"No matter which way you choose, it's not that important. It is much more about your enthusiasm, passion for learning, and about your ability to analyse, select, make conclusions and decisions. However, if you've got the chance to study at a college, it might give you more time for growing and more options to observe. Some personal guidance given by experienced artists is always useful, as well. But, the real challenge begins when you are out of school!"

Rich Diamant

"If you can find a good college that actually teaches you, by all means go! I find that most of the top people tend to be self-taught, since they are so motivated to learn and can't be bothered waiting for the right class to come along. Either way it's all the same – just a means to an end."

Sean Dunderdale

"I studied for 3 years at university. Clearly, you are able to do either and be a success, but I am glad I went to uni."

Sorin Radu

"Well, like I said before, I am at high school and I'm not at art school, so I learn myself from tutorials. I think the best thing is to have a college education."

Stepan (O)ne Grakov

"I was learning by myself, but good trainers can save you a lot of time for sure."

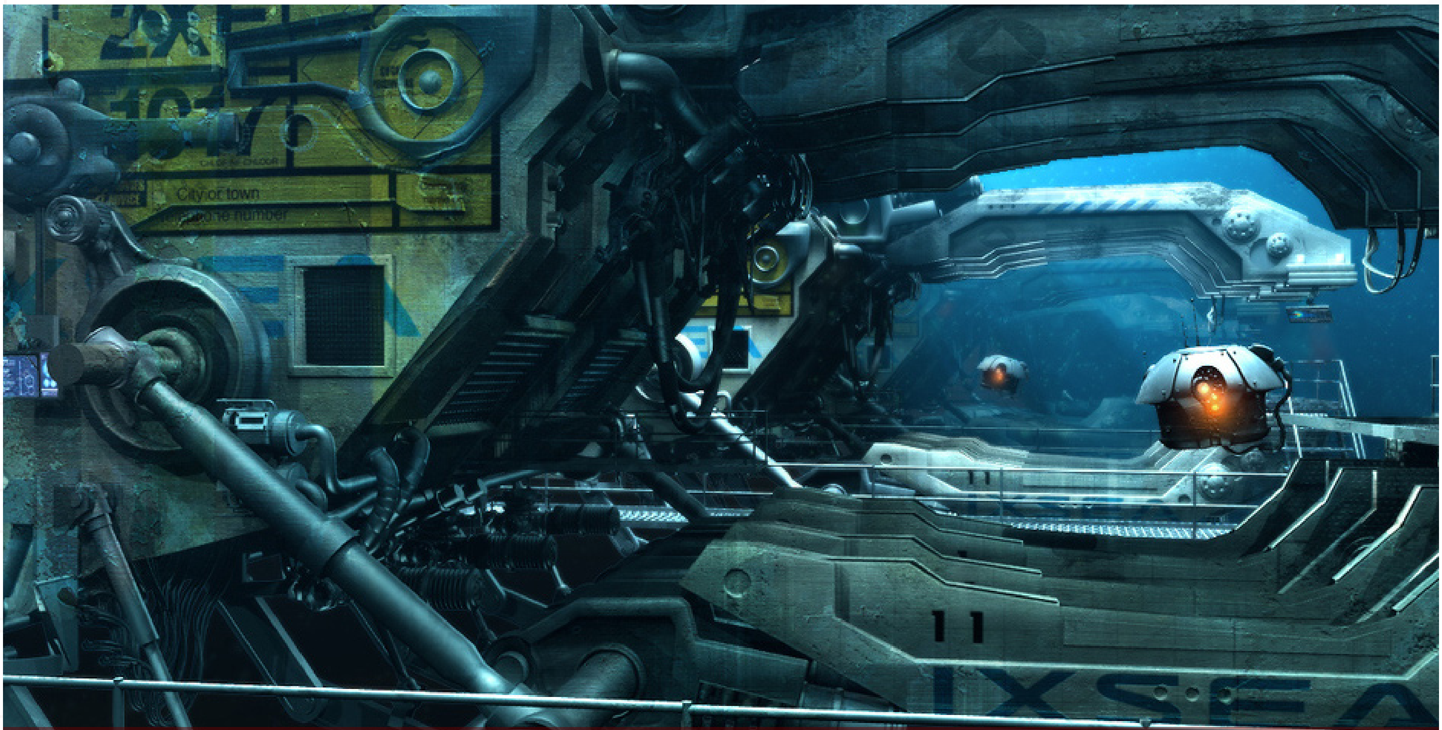


Image By Neil Maccormack

Sven Rabe

3D Artist, Germany

"A combination of both I would say. Learning by yourself is a good start I think, because you'll run into many more problems which you'll have to solve on your own, and this can give you a stronger background of understanding how and why things work in a certain way, rather than having a teacher in front of you saying everything you have to do, even though you don't really know why. On the other hand, having someone well-educated beside you, and teaching you, is really perfect, as you can learn so much in a very short amount of time. I would say, try to find a good balance between the two."

Tiziano Fioriti

Freelance 3D Artist & Digital Matte Painter

Italy

"I definitely think that a university qualification is of central importance. You will not be able to invent something new if you don't know the successes and failures of our past. Anyway, you have to keep your curiosity alive in order to feed your wish to learn, and you don't have to give up studying and researching. The secret is to always feel as a beginner."

Tycane

3D Developer & Designer, NDG, Amsterdam

"Both have their plus points. I'm self-taught, and I know a fair bit of the software I use. But I think you will learn the software a lot faster and more completely if it's taught to you by someone else (school). On the other hand, I do also think that the artist who has gotten good on his own has spent a lot more time and effort learning the techniques and software, and can have a greater passion for it. I mean, if you're willing to spend at least 4 hours a day to learn something for a couple of years, with no other help than the Help file that comes with the software, and Internet pages (like I didn't have for the first 3 years), then it's a sure sign of having great passion and perseverance for your art. Which is something that may be lacking in college educated artists."

Vojislav Milanovic

General 3D Artist, Animated Biomedical Productions, Sydney, Australia

"If you can get both, like I did, get it! If not, you can always be self-taught, which might even be better if you are disciplined and eager enough!"

Zdenek Urbánek

Student, Liberec City, Czech Republic

"I never studied at an art school or a school which focused on CG. Now I study MECH at school, and I would like to try some CG/Art university or another school. Sure, I have taught myself everything so far, or with the help of some tutorials or from some people or friends on Czech CG web forums."

In next month's issue, find out what a group of artists said when we asked them:

"What was the one single factor in your career path that had the most effect on where you are today?"

“MODO HAS BEEN AN INTEGRAL PART OF THE EMBASSY’S MODELLING PIPELINE FOR SEVERAL YEARS NOW, AND WE WERE EAGER TO USE IT ON ‘TERMINUS’.”

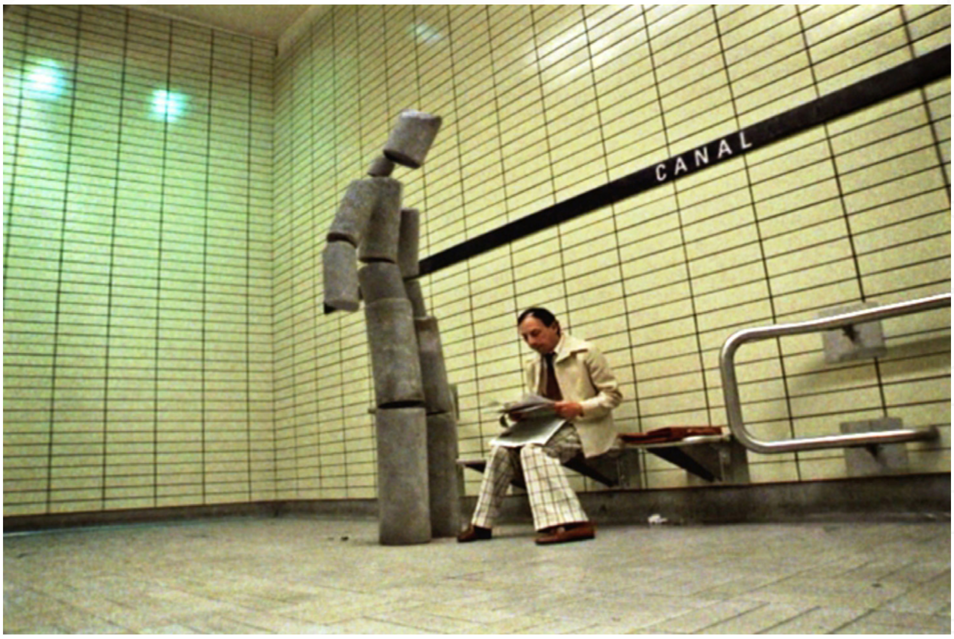
Terminus

Luxology talk about their new short film, “Terminus”, and about how they created it with the help of director, Trevor Cawood...

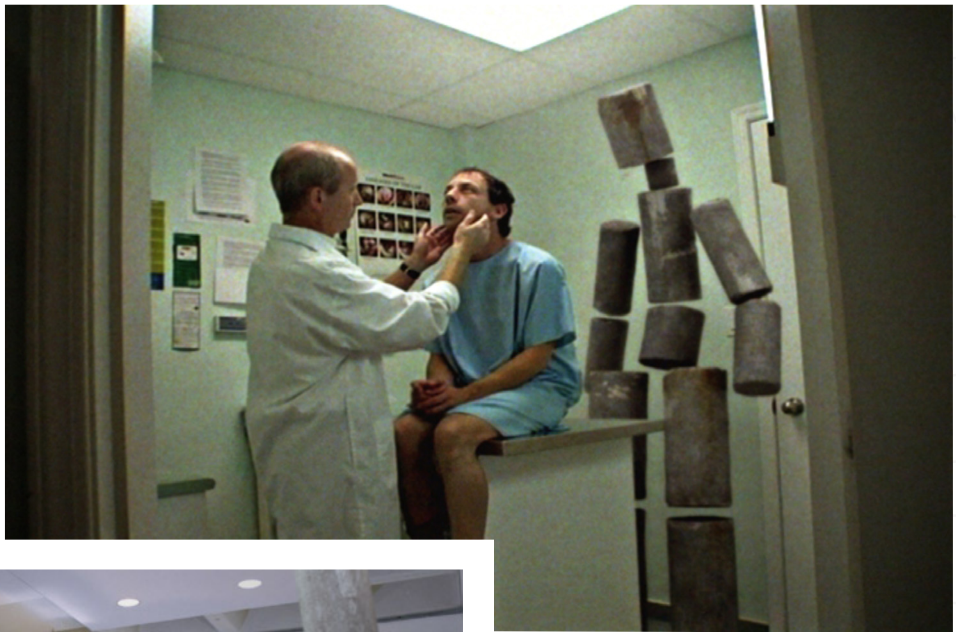
Terminus

The Embassy Uses modo 301 for Independent Short Film, "Terminus"

Team Employs modo's New Painting, Texturing and UV Unwrap Tools to Create Several CG Characters.



Luxology® LLC, an independent technology company developing next-generation 3D content creation software, announced that The Embassy used modo™ 301 for "Terminus," a new short film by director, Trevor Cawood. The visual effects team made extensive use of modo 301's new painting, texturing and UV unwrap tools to create CG characters that represent various urban instalments and materials, including a concrete column character, an airport baggage turnstile character, and an information kiosk character.

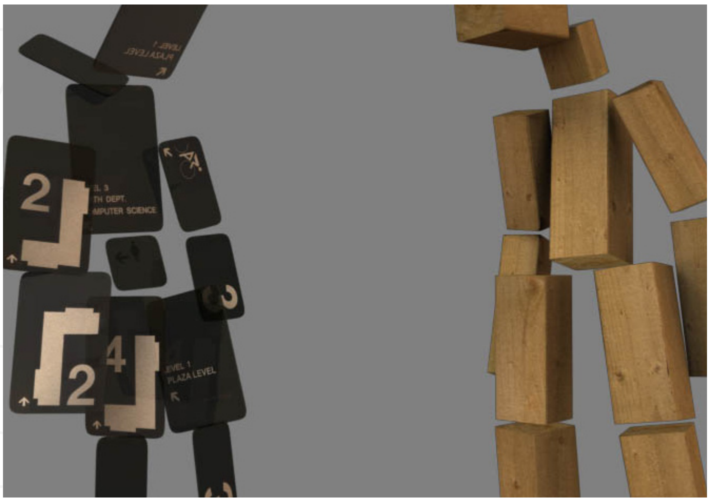


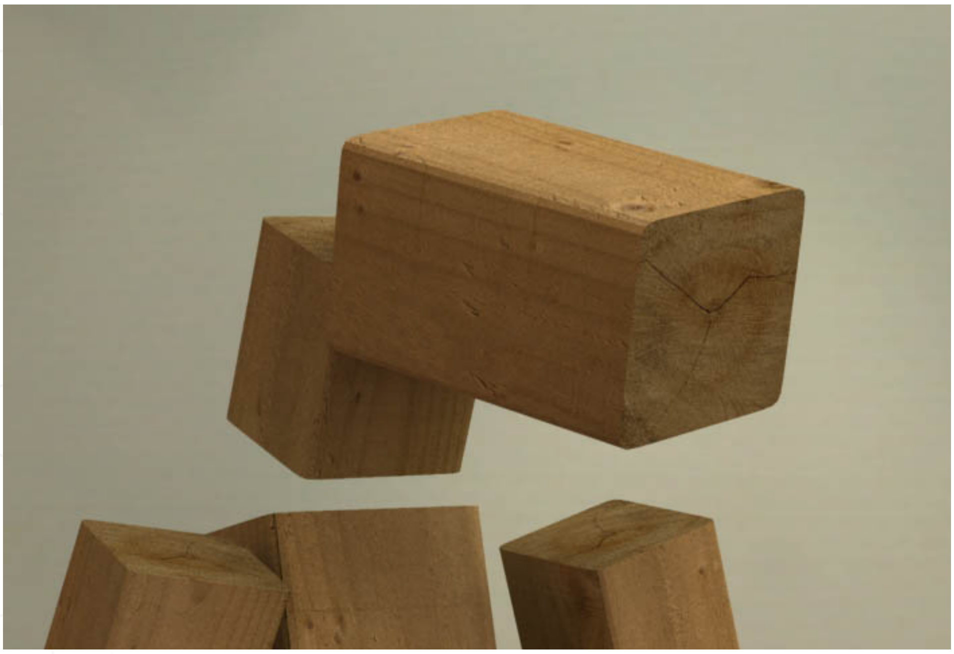
"Terminus" is an eerie and darkly humorous tale about human alienation in a modern urban environment. It tells the story of a 1970s businessman who inadvertently offends a strange and ambiguous entity that accosts him on his way to work, and the man's rapid descent into madness following the encounter. modo was one of several 2D and 3D tools employed on "Terminus", which features innovative visual effects and a distinctively vintage atmosphere. "Terminus" can be viewed online at http://www.terminus-movie.com/terminus.html.

"modo has been an integral part of The Embassy's modelling pipeline for several years now, and we were eager to use it on 'Terminus'," said Tristam Gieni, visual effects supervisor on the film. "We made extensive use of modo 301's new painting, UV unwrap

and sculpting tools on this project – they saved us significant time and allowed us to achieve excellent results without having to traverse several other software packages. Being able to sculpt right within the modo environment really simplified our workflow as well. We're also impressed with modo's OpenGL performance – being able to paint texture maps and view our work in real time was a tremendous asset."

"Terminus" was directed by Trevor Cawood. The Embassy's Tristam Gieni was the visual effects supervisor, and The Embassy handled all visual effects and post-production on the film. Special effects prosthetics were created by Sarah Bergeest and motion capture was done by Rainmaker Animation.





About modo

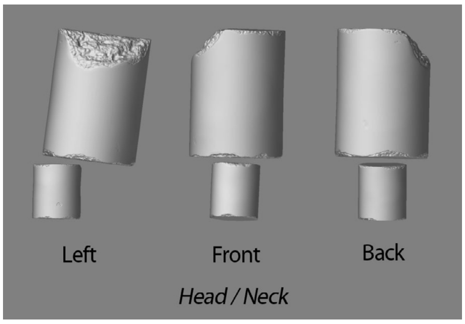
modo 301 is modern, artist-friendly 3D software that combines modelling, sculpting, painting, animation and rendering in a fused workflow for artists creating 3D content and final imagery for design visualisation, creative imaging, game development, film and broadcast, educational

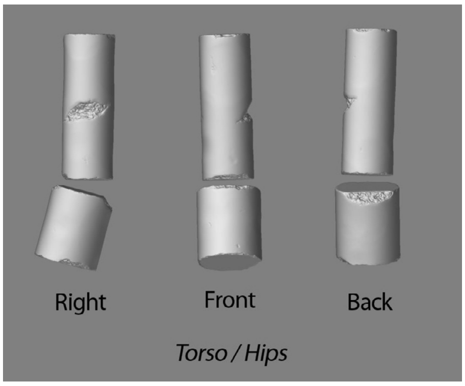

INNOVATION

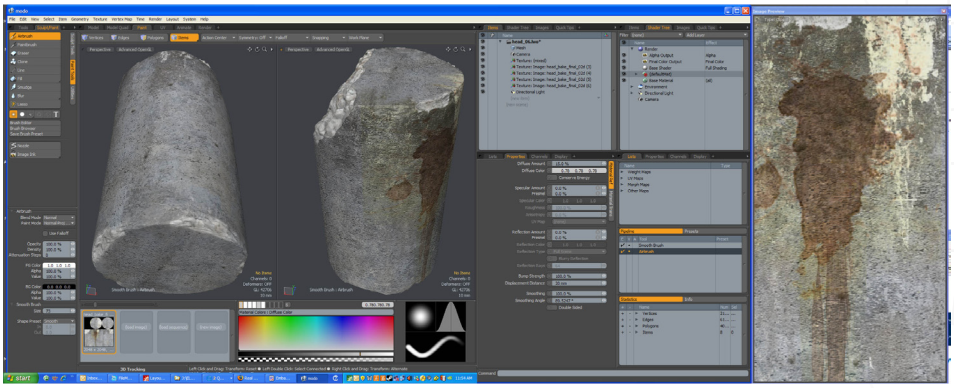
and scientific purposes. A favourite tool among many designers and artists, modo's innovative toolset offers one of the fastest paths to content creation.

About The Embassy

Founded in 2002 in Vancouver, Canada, The Embassy Visual Effects Inc. was formed by award-winning digital artists. The Embassy team has worked on a variety of visual effects projects with production companies in the United States, Europe and Asia. For more information visit the company's website at www.theembassyvfx.com.







About Luxology

Based in San Mateo, Calif., Luxology® LLC is an independent technology company developing next-generation 3D content creation software that enhances productivity via artist-friendly tools powered by a modern underlying architecture. Founded in 2002 by Allen Hastings, Stuart Ferguson and Brad Peebler, Luxology is home to some of the top 3D engineering expertise in the industry. More information on Luxology, its flagship product modo™, a gallery of artists' images and the active modo community is available online at www.modo3d.com.

Terminus

For more information please visit: www.terminus-movie.com/terminus.html

Or contact: jennifer@liaisonpr.com

Article Courtesy: Liaison Inc. / Luxology LLC

'ROBOSOCCER' AND 'RACE' SPOTS FOR RUSSIA

SNICKERS

From football playing robots in an abandoned steel yard, to futuristic gliders tearing through a populated city, Alex Kiesl from **Unexpected**, in Germany, tells us how these two epic style Snickers advertisements for Russian TV were made...

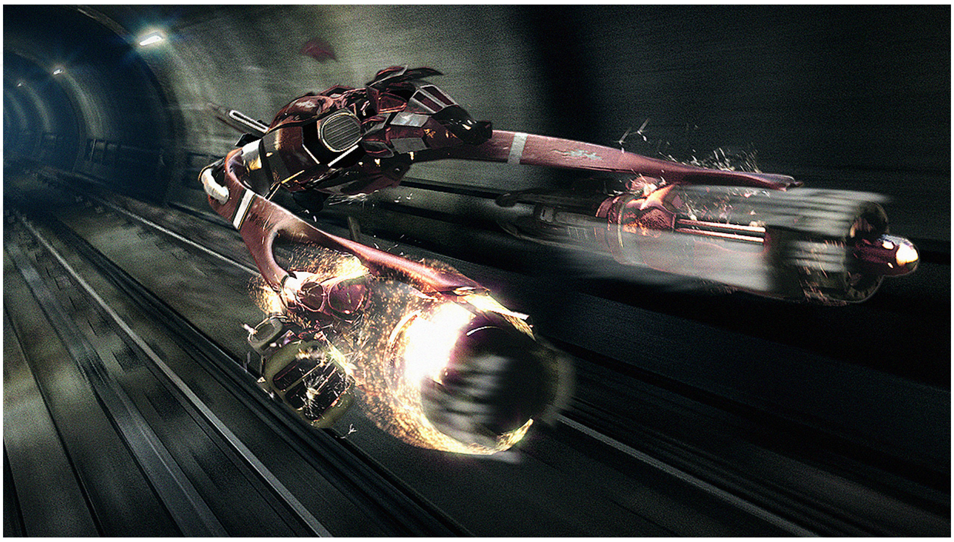
"THE MORE PRECISE THE PREPARATION BECAME, THE MORE IT WAS OBVIOUS THAT THE DESIRED AND HECTIC HAND-HELD CAMERA-STYLE, AND THE FAST STORYTELLING, WOULD BE HARD TO ACHIEVE WITH A LIVE-ACTION SHOOT..."

SNICKERS 'ROBOSOCCER' AND 'RACE' SPOTS FOR RUSSIA

Two futuristic gliders chase each other through a huge city (Race), and two gigantic robots play soccer on an abandoned factory site with a huge metal scapball (Robosoccer). This was roughly how the first briefing that came out of Toronto to Stuttgart's posthouse, Unexpected, at the beginning of last year sounded. Although they sound at first like the huge action-sequences of a feature film, they are actually all about two Snickers Commercials for the Russian market, that found their way over from Canada and in Germany... not in a direct way, but then that's what the commercial world is like. The agency BBDO Moscow originally contacted the Canadian production company, Spyfilms, which is famous for their "Citroën-Transformers" spot, to ask them if they would be interested in these two projects. They in turn hired the German directing duo "Alex & Steffen", of Unexpected, who specialise in commercials which make heavy use of visual effects... and that's how the whole job arrived in Germany.

As both spots had to be shot directly after one another, in a very short period of time, a lot of preparation was necessary in order to avoid bad surprises during the post production stage. The first spot, "Race", was shot in Toronto, and so 3D artists Jörg Häberle and Jan Roth modelled a true scale model of the city. With the help of web search engines, city maps, location pictures and Google-Earth, they created an almost exact digital downtown Toronto, which then helped to create the planned moves and camera angles in the form of an animatic. A nice side-effect was that, by doing things this way, it became quite easy to tell the production company the exact location names, streets and rooftops which were needed for the shoot itself.

The more precise the preparation became, the more it was obvious that the desired and hectic hand-held camera-style, and the fast storytelling, would be hard to achieve with a live-action shoot. It would have been impossible to track the shots to integrate the gliders and



the robots. And for some shots, huge camera cranes and rigs would have been necessary, which would have made it difficult to stay within the budget. So, with an enormous amount of craziness, paired with self-confidence, they decided to completely create the spots in 3D and pass on the live-action shoot!

Parallel to the preparation, Sebastian Stolle – Unexpected's internal Character Designer – started to work on the designs of the robots. More than 15 different styles were created before coming to the final robot-designs. They were able to consist of various machine parts, turbines, caterpillars, trains, engines and much more, which gave a lot of freedom to the designers. The gliders on the other hand were designed by Jörg Haberle, who decided to create simplified 3D models, which were discussed with the agency, and found their way into the final designs.

Gereon Zwosta, a freelance 3D artist from Munich, was hired to model the two robots. He was able to finish the robots within two weeks, using poly-modelling. Jörg Häberle refined the gliders and added many more details to the geometry.

For the texturing, it was important to give the models a look which had to be perfectly balanced between used and dirty, but not quite broken and filthy. Painted metal parts with scratches and areas of blank or burned metal, and greasy hydraulic systems, had to be created. All the shaders were made in VRay. Emil Stefanov came to support the shading team and took special care of the HDRI reflections and GI-Shaders which were necessary for the compositing. To be able to tweak as much as possible in the compositing stage, lots of different layers were rendered.

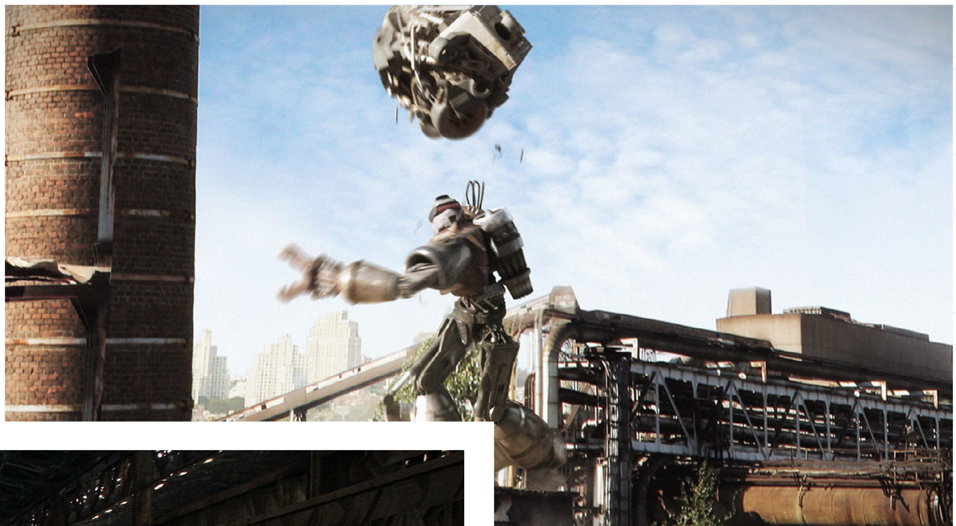
But for the “Robosoccer” spot, another character had to be developed: the scrapball. The decision was not to have a simple compressed firm scrapball, but to have a ball which consisted of various interwoven metal parts and elements which had been compressed by its own weight, allowing it to deform as it rolls over the ground or obstacles. Jörg Häberle developed a complex setup with a control-sphere, surface constraints and freeform-deformers, which made it possible to adjust the ball to any possible situation.

Both robots were rigged with Character Studio, as the experiences, in combination with motion capture and the possibility of using the layer-function to off-set or animate by hand, have been very positive, as well as the functionality of the Motion Mixer which allowed us to edit, blend, mix, squeeze and stretch motion capture data easily. Gereon Zwosta added lots of bones and constraints to enhance the setup so that all the hydraulic elements worked automatically.

Some animations, like the rotation and movement of the plier hand, were wired to sliders to make animating them a little bit easier and more comfortable. The gliders were also given a user-friendly setup. The flaps and wings

were wired, and the length of the afterburn flame was dependant on the position of the engine hatches, but of course everything was still individually animatable.

The actors were filmed infront of a blue screen studio, near Stuttgart. That's where the precisely planned jumps and camera moves were shot. But, as the blue screen shoot was done before the actual shoots in Toronto and Budapest, the crew around DP Oliver Staubi had to set different lighting situations for every shot, just to make sure the key character would fit in any lighting situation. For the tunnel sequence, they built a special rig which allowed the lights to rotate around a tripod, which created the effect of passing lights.



The actual shoot was actually more of an excessive photo shoot. In Toronto, more than 4,000 photographs of the selected streets and houses were shot. As the animatic was exactly planned, directors Alexander Kiesl and Steffen Hacker could concentrate on shooting as many photographs of the settings as possible, in order to get the best results in the post production, and to have the possibility of achieving the best camera angles and moves.

The shooting in Budapest, on an old abandoned steel factory, was more adventurous. Both directors had to climb onto 40 metre high rusty smoke stacks, rooftops, metal bridges and steel girders, which were considered to be close to collapsing by the local security. Again, more than 4,500 photographs were taken on this location, as well.

To capture the lighting situation, a chrome ball was shot with three different stops from the planned camera angle, and was later composed into an HDRI picture in Photoshop. Back in Stuttgart, 8,500 pictures had to be sorted and the best shots had to be selected.

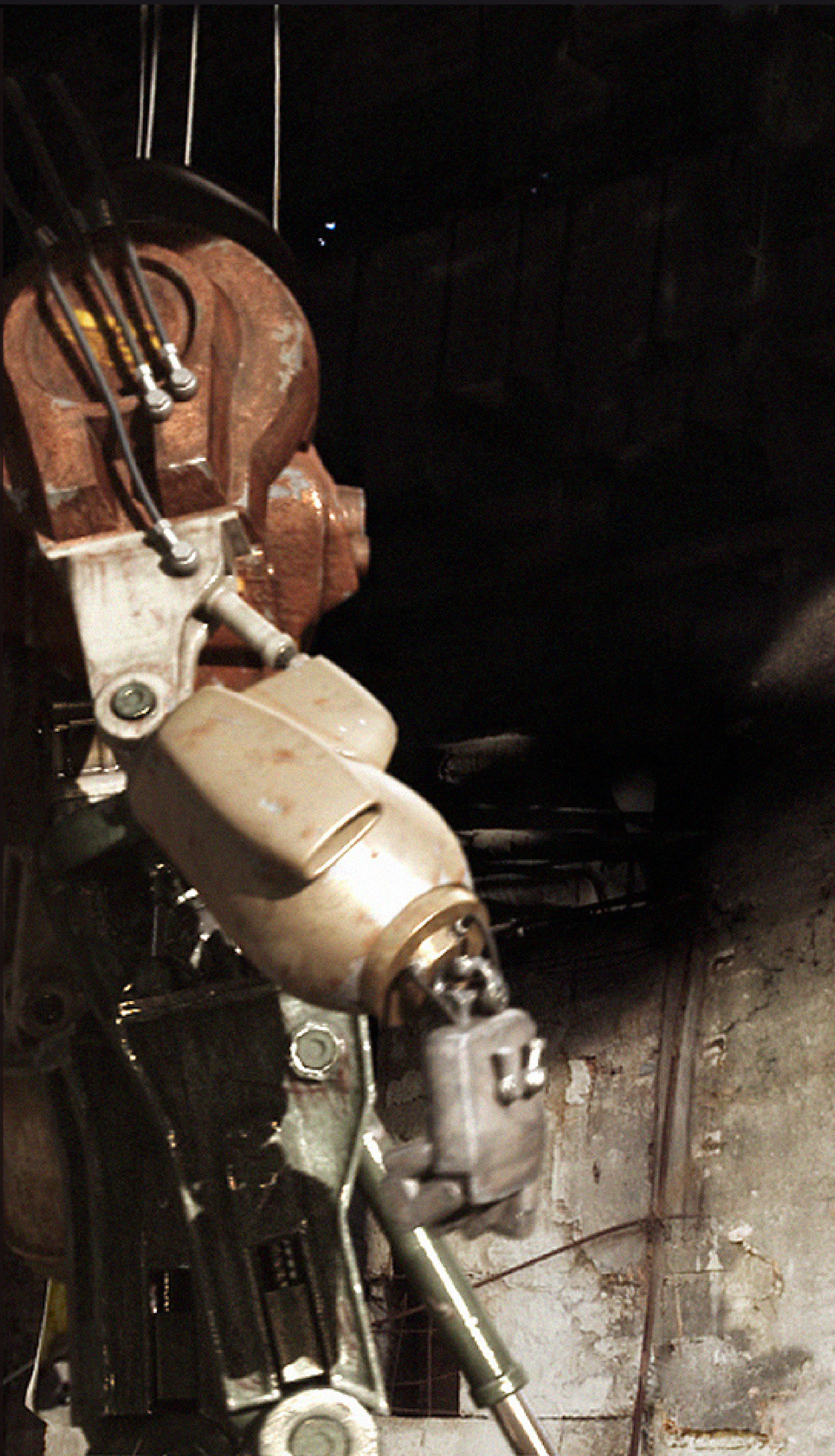
As most areas were covered with dozens of photographs, all the corresponding ones had to be stitched together in Photoshop to create one huge picture. The resolution of the pictures varied from shot to shot – depending on the camera move – between 8,000 and 16,000 pixels in width. All final pictures were used as a background image in 3D Studio Max, and Alexander Kiesl modelled all relevant objects in perspective and projected the image back on to the geometry via camera-mapping. Afterwards, lots of retouches had to be done to separate the foreground from the background and to fill in missing parts of the background which were revealed by the camera moves. This way there was almost no limit to the camera moves and the shots could be shaky, zoomed in and out quickly, and yet still look realistic, but would be impossible to track if they were shot with a real film camera.

The only shot that had to be modelled without this technique was the tunnel sequence in the "Race" spot, as it would not have worked in this way.

Due to the short post production time, Unexpected decided to use motion-capture as the basis for the animation. As they work very closely together with Metricminds, in Frankfurt, it was no wonder they went there with the huge list of moves that they wanted to capture. The data they provided was perfectly analysed to work with Character Studio. So it was easily possible to edit, mix, blend and modify the moves with the motion mixer, and after that animate everything on top to exaggerate and refine the motion. Alexander Kiesl and Sebastian Stolle animated the two robots and the scrapball, which was quite an enjoyable task. In the end, the ratio was 60% motion capture and 40% hand-animation.

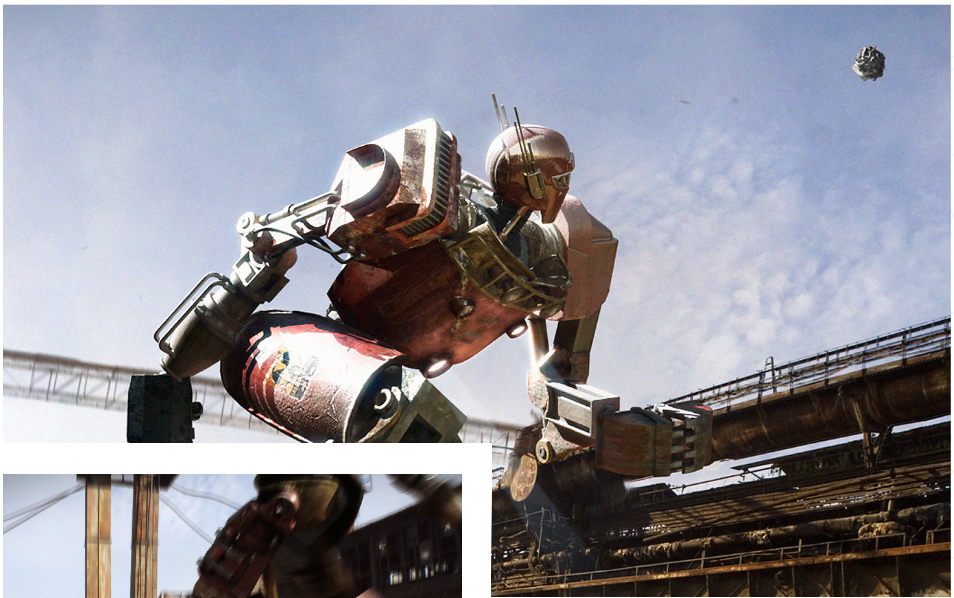
Achieving the maximum level of integration of the characters and the environments was very important from the very beginning. So Emil Stefanov was hired to generate tonnes of dust and particle animations and simulations. He used Particle Flow, in combination with Afterburn, to create all the impacts and dust clouds for the huge robots and the sandy surface that they are running on. Dozens of layers with small stones and debris were rendered to enhance the impression of the weight and force.

After all the 3D work, the lighting and the rendering, Steffen Hacker took control over all the layers in the compositing stage. The live-action footage was directly recorded uncompressed onto a disc array via HD SDI in the blue screen studio, which made keying quite a comfortable task with Keylight in After Effects. To get the metallic glow caused by the sun, Hacker used a subtle highlight glow via Glint out of the Sapphire Tools. Every character had roughly four to six layers, depending on the shot, which was very artfully composed



and tweaked until everything matched with the background image. For the colour correction, Alex and Steffen decided not to go in a too extreme direction, as it made the whole material look more and more unrealistic, so they decided to go for a more natural correction.

The spots first aired in early spring 2007, and the client decided to put it on rotation again last summer as it was one of the most successful campaigns for Snickers in the Russian market. By the end of 2007, Alex and Steffen finished, together with their team at Unexpected, another spot named “Rugby”, and another one will be done by the end of February 2008... so keep your eyes open for the new Snickers spots!



Links to the HD Ads:

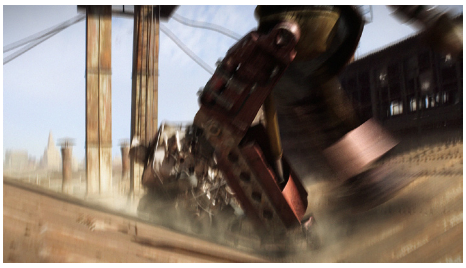
Download Snickers Race_720p.wmv here!

Download Snickers Robots_720p.wmv here!

Links to the Making Of Movies:

75MB version **.mpg**: download here!

33MB version **.mov**: download here!



Info About Kiesl & Hacker, Unexpected:

Alexander Kiesl is one of the founders and Managing Directors of Unexpected Postprodcution, in Stuttgart. He studied animation and visual effects at the Filmakademie Baden-Württemberg, in Ludwigsburg, where he met Steffen Hacker and Sebastian Stolle. In 2005, he made the award-winning short, “Racing Beats”, together with Hacker, which led them to the field of directing commercials as the directing duo “Alex & Steffen”. Kiesl and Hacker are Heads of Unexpected’s visual effects department where they work on mostly international commercials with their team.

Unexpected Postproduction was founded in 1999 and slowly, but constantly, has grown to a size of 42 employees in 2008.

Credits:

Agency: BBDO Moscow
Agency Producer: Anna Yakanina
Creative Director: Andrey Zaitsev
Art Director: Andrey Ivanov
Copyrighter: Nikolai Megvelidze
Accounts Team: Alexey Levchenko, Natalia Tsyganova

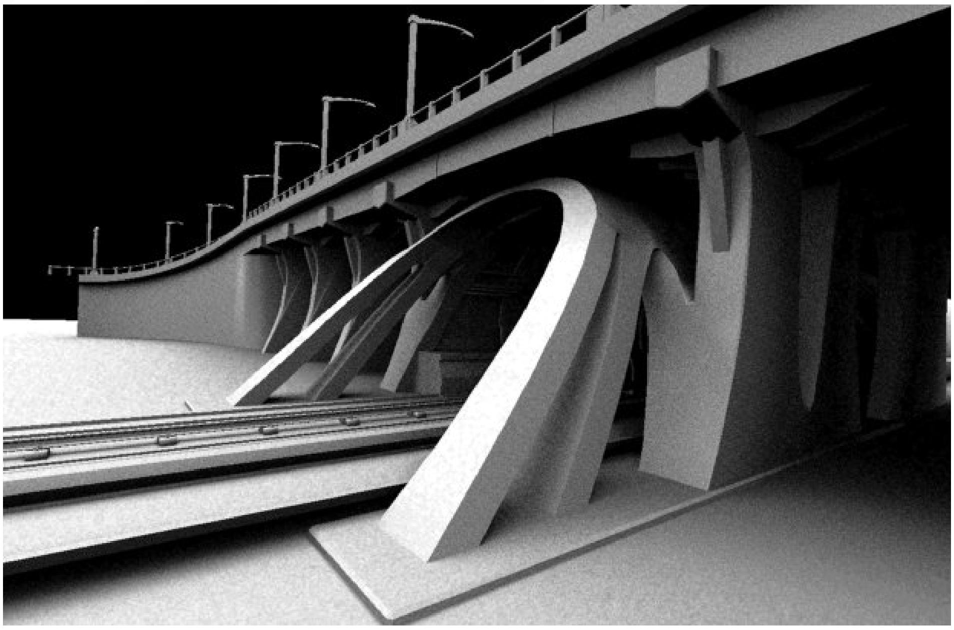
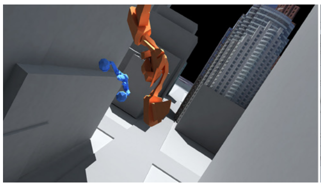
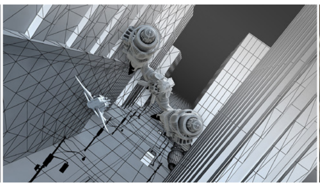
Directors: Alex Kiesl & Steffen Hacker
DOP: Oliver Staubi
Production Company: Spy Films
Executive Producer: Carlo Trulli
Producer: Marc Milliard

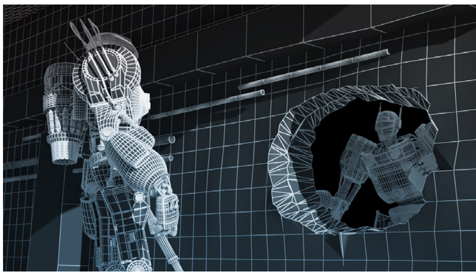
Postproduction: Unexpected GmbH
VFX Supervisor: Alex & Steffen
3D Leads: Alexander Kiesl
3D Artists: Sebastian Stolle, Gereon Zwosta, Emil Stefanov, Jörg Haeberle, Jan Roth
Lead Compositor: Steffen Hacker

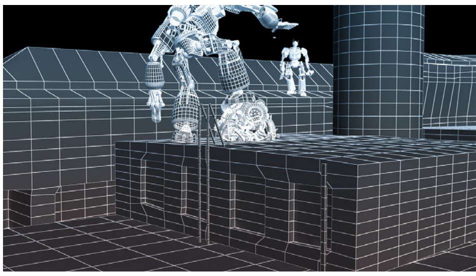
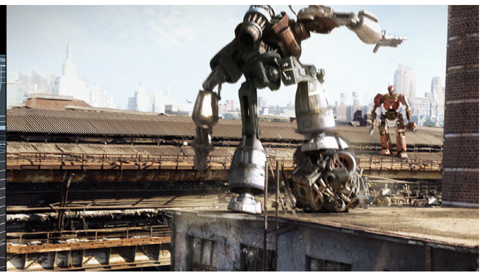
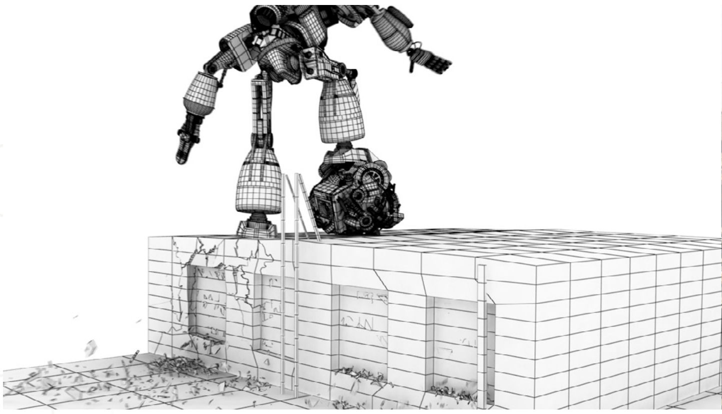
Snickers: 'Robosoccer' and 'Race' Spots for Russia

For more information please visit:
www.unexpected.de
Or contact:
a.kiesl@unexpected.de

Article Courtesy: Alexander Kiesl, **Unexpected**




GALLERIES

This Month we Feature:

- Serkan Çelik
- Luis Ramos
- Oers Sardi
- Vladimir Venkov
- Javier Núñez
- Gan Jian
- Eugenio García Villarreal
- Ian Brink
- Zin
- Till Nowak

Far Far Away

Vladimir Venkov
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vlad74xsi@yahoo.co.uk

Vantage at Dusk

Ian Brink
www.thebrinc.com
ian@thebrinc.com


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Riverside State Asylum

Oers Sardi

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Afternoon Alley

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SUBWAY

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Unplugged

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THE SHAVED BUMBLEBEE

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the 3DC challenge

3DCreative Magazine introduces the ‘Challenge’ section of the mag. Every month we will run these challenges, available for anyone to enter for prizes and goodies from the www.3dtotal.com shop, and also for the chance to be featured in this very magazine! The 2D challenge runs in the ConceptArt.org forums, and the 3D challenge runs in the Threedy.com forums. Here we will display the winners from the previous month’s challenge, and the Making Ofs from the month before that...

Carnivore Dinosaur

Stylised Animal challenge

In Association with

Stylised Animal Challenge

Carnivore Dinosaur

The Challenge

Welcome to the Stylised Animal Monthly Challenge. Each month we will select an animal and post some images in the forum thread as reference. All you have to do is to create a 3D image of this creature in a stylised/ abstract/cartoon style, whilst keeping your creature instantly recognisable. We wanted to publish some content in 3DCreative Magazine on how to create stylised animals, such as you see in the many feature films and cartoon galleries. We thought this regular competition might bring in just the images and Making Ofs that we need, whilst giving away great prizes and exposure. If it's a success, we will start to boost the prizes up as much as possible! This month's animal was the Carnivorous Dinosaur. Here you can see the top 6 placed entries, as voted for by the public.

What are we looking for?

Funny and humorous entries which break the animal down to its most recognisable components; emphasise these in whichever ways you think best, and render your stylised/abstract/cartoon masterpiece. The rules are pretty laid back: please submit 1 x 3D render (minor post work

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5TH: NATO_VANDOOKIE nato_vandookie@yahoo.com

5TH: IAMBURGER

is OK); it's up to you if you want to have a background or if you want include some graphical elements or text on your image. Renders of the 800 pixel dimension sound about right, but the winners will be featured in 3DCreative Magazine, so if you can create some higher resolution images too, all the better! There will be one competition per month, with the deadline being the end of the month (GMT). For a valid entry, just make sure your final image is posted in the main competition thread before the

3RD: NOVISKI

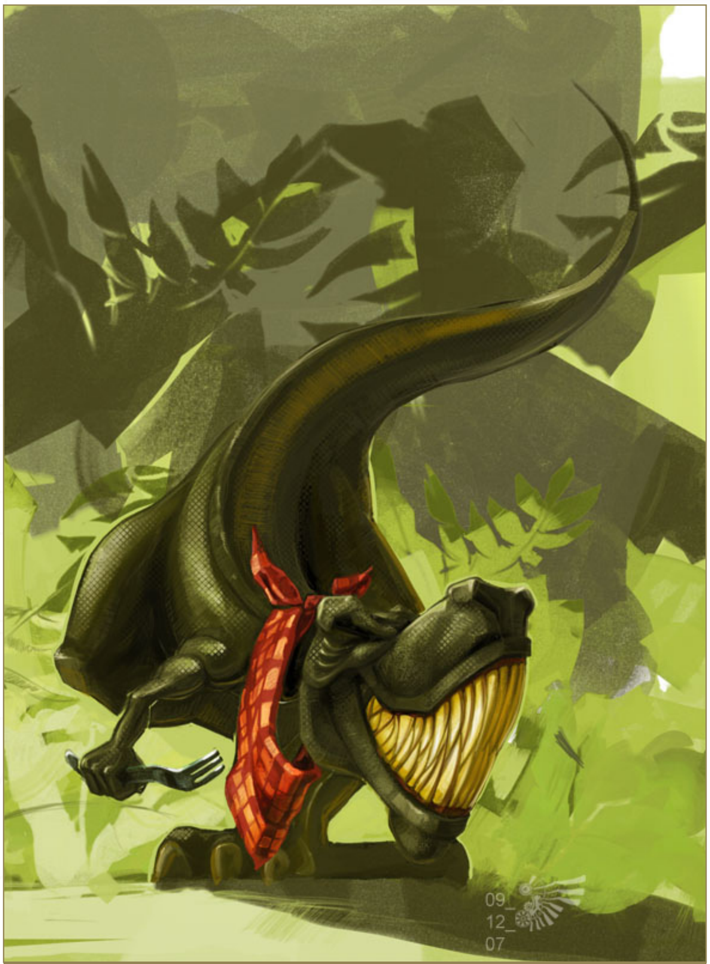
deadline. We require the top 3 winners to submit 'Making Of' overview articles that will be shown on either 3DTotal.com or in 3DCreative Magazine. These need to show the stages of your creation, different elements, and some brief explanation text of why, and how, you did what you did. We will format this into some nice-looking pages to give you some great exposure, and us some quality content. Each competition will have one main thread which starts with the brief at the top. All entrants should post all WIPs, give feedback, and generally laugh at the crazy ideas that are emerging each month...

CHALLENGE THREAD

The entire Carnivorous Dinosaur competition can be viewed here.

2ND: SIEGE mailforsiege@yahoo.com

1ST: ALOALVAREZ contact@aloalvarez.com www.aloalvarez.com



1ST: 28THWING

The current challenge at the voting stage is:

SWIMMING DINOSAUR

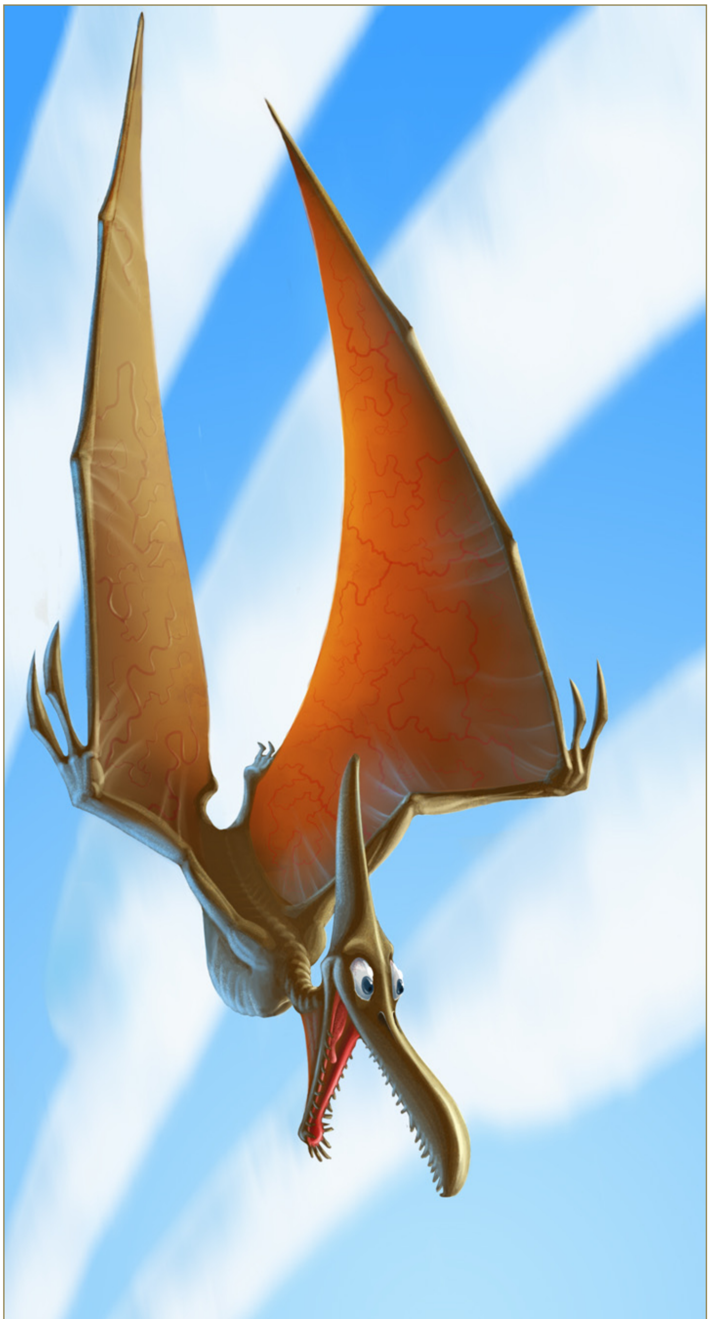
The current challenge taking place is:

DRAGONS

To join the next challenge, or to view previous, and/or current entries, please visit: www.threedy.com. Or, for the 2D challenge, please visit: www.conceptart.org or contact: lynette@zoopublishing.com.

2D CHALLENGE

Here are last month's top entries from the 2D competition...



2ND: SCARYPOTATOE

3RD: AB4185

MAKING OFS

Here are the Making Ofs from last month's top 3 winning entries...

3RD – NYPHE

STEP 1: CONCEPT

When I think of dinosaurs, I think of how BIG they actually were. I immediately envisioned a caveman being stomped on by a giant dino, but I wasn't quite sure of the type of dino or the composition. After some quick research and sketching, I thought I would go with a Brontosaurus/Ultrasaurus, looking back at what he'd just stepped on.

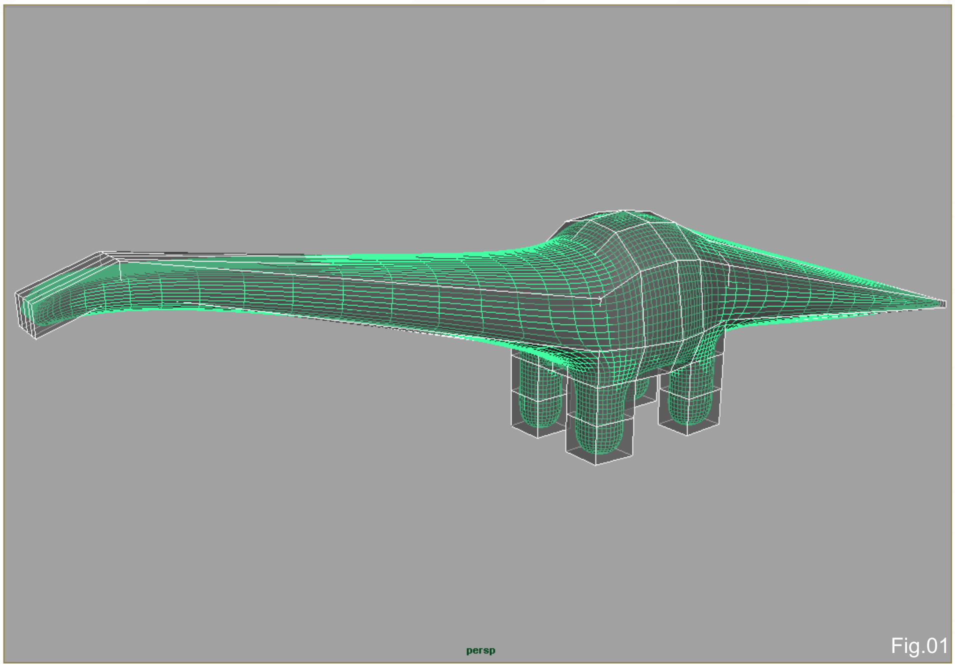


Fig.01

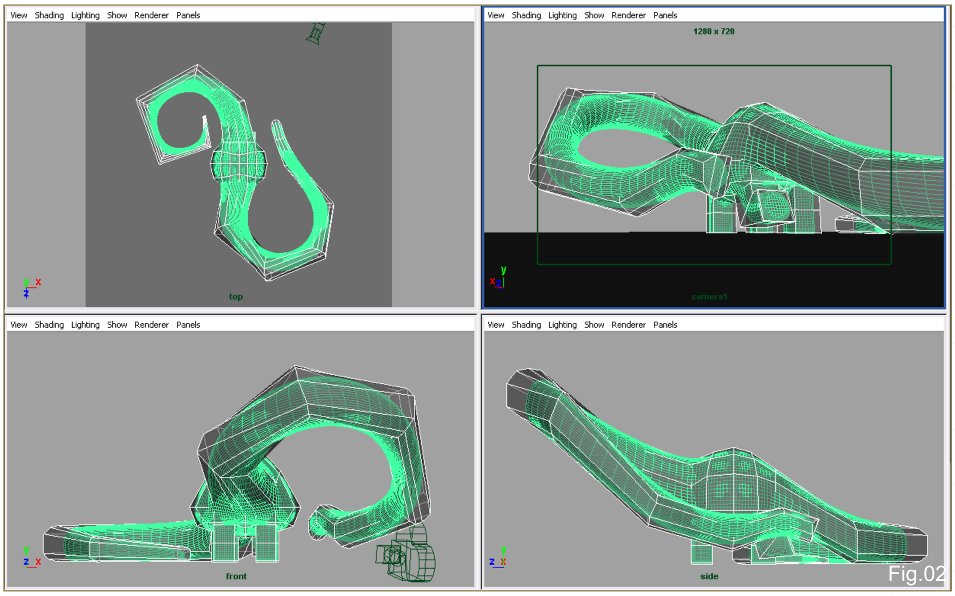


Fig.02

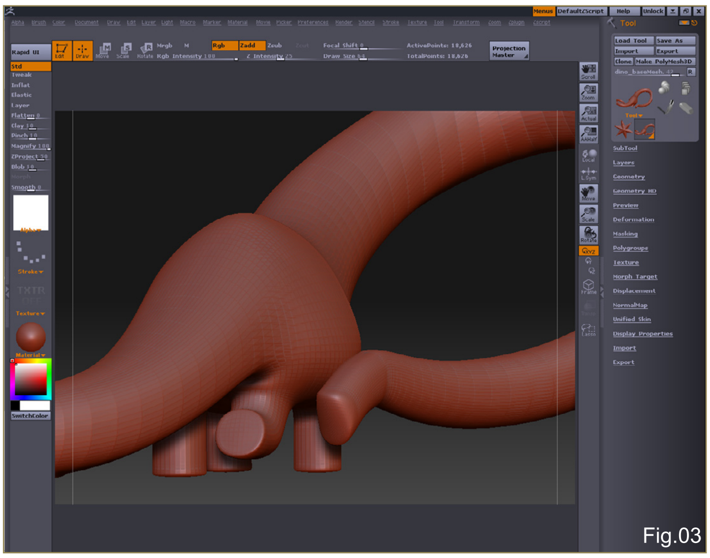


Fig.03

STEP 2: RESEARCH

Researching how the Brontosaurus looked was very quick. I really just wanted to get some basic proportions and facial shapes. After that I looked at a variety of facial expressions to give the dinosaur a cartoon look. Once I knew what facial expression I wanted the dino to have, it was all production from there onwards.

STEP 3: MODELLING

I initially set up a very basic cage for my dino (working with polygons in Maya): four legs, a long neck and a long tail... Done (**Fig01**).

STEP 4: POSING

I posed my dino by manipulating the basic cage. No bones were used,

because I knew that I was developing this for a still render. After moving some vertices and edges around, I repositioned the camera to give myself a better idea of the final pose. Some slight tweaking here and there… Done (**Fig02**).

Step 5: ZBrush

I needed a face on my dino, so I decided to sculpt it all in ZBrush rather than modelling it in Maya. Again, I didn't take a typical workflow or any usual modelling practices because I was just doing this for a still render. Let the sculpting begin!

I knew the emphasis of the composition would be on the dinosaur's facial expression, so I wanted to put the most detail into his face. After sculpting the face, I gave the dino some toes and a few other small details. I didn't want to go overboard with the details because again I was trying for a cartoon-style end product (**Fig03** and **Fig04**).

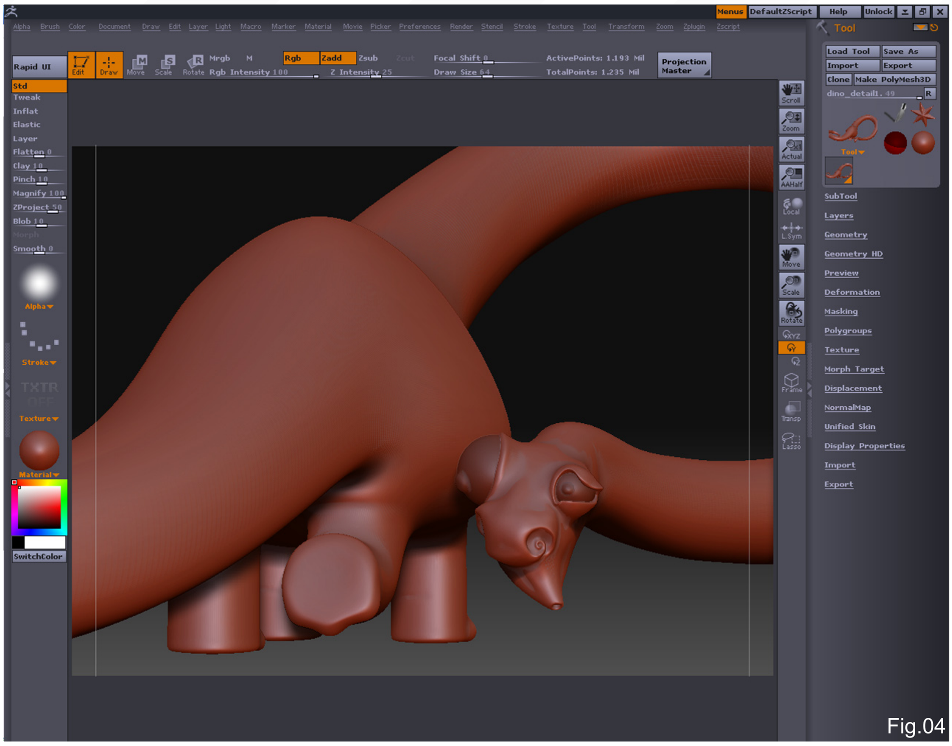


Fig.04

Step 6: Caveman

With the dinosaur done, it was time to move on to the victim... Mr. Caveman. I just wanted to do a very basic and stereotypical caveman, so he is wearing his leopard skin clothing, has a thick beard with wild hair, and his weapon of choice is a club. I knew that he would never command that much of the composition so there was no need to put a tonne of detail into his model and textures. For the blood splatter, I just made a simple NURBS plane shaped like a cartoon spil (**Fig05** & **Fig06**).


Fig.05


Fig.06

Step 7: Lighting and Texturing

For the textures, I almost always use procedural textures for the majority of my work, therefore the dino has all 3D textures. I used a fake GI script to do the lighting. This is a very fast and easy way to create soft shadows

and a soft look and feel for the renders. It also helps the render times for larger renders (**Fig07**).

Step 8: Rendering and Compositing

For rendering the scene, I only used 2 passes: a Normal pass with everything on (diffuse, specular, shadows, and so on) and an Ambient Occlusion pass to help soften the shadows even more. I rendered the caveman separately, just in case I had to tweak any of his colours and other attributes separately from the dino. I created some basic clouds in Maya to complete the composition. Once all of my renders were done, I took them all into Photoshop to comp them together. I had a simple background gradient, cartoon clouds, my normal render pass, my occlusion pass, and then my caveman. That's it (**Fig08**).

Conclusion

This project was intended to be very fast and simple, with an emphasis on the composition and the facial expression of the dinosaur. I knew from the start I wanted a cartoon-like image and I tried to not stray from that initial idea throughout the project. I took a lot of easy and simple shortcuts to help me progress through this project, but in the end I am satisfied with the final image.

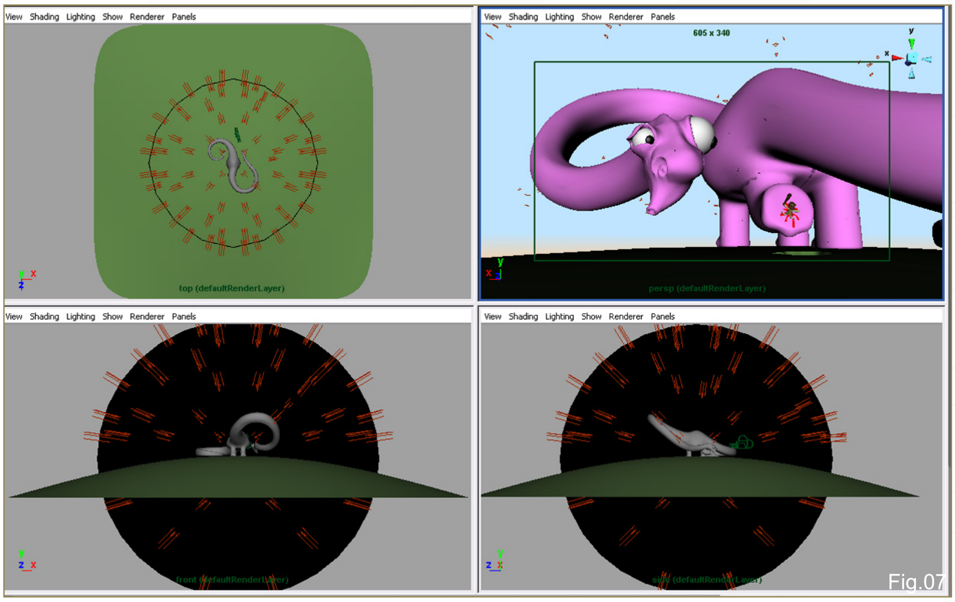


Fig.07

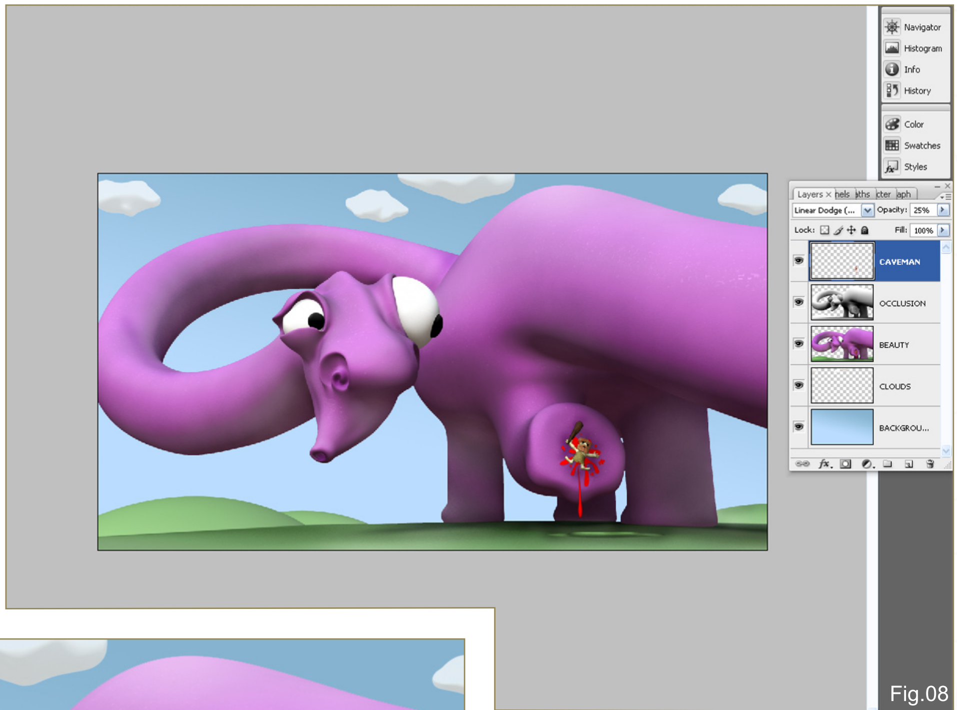


Fig.08

Thank you to everyone who voted for me and thank you 3DTotal for your continued support of 3D artists with these competitions. I look forward to participating in many future stylised animal competitions. Cheers!

Kevin O'Keefe

You can contact this artist by email:
kevin@graygiant.com

2ND – MAPE

STEP 1: CONCEPT

It is important to have a rough idea of what we want to express through our work, so that our ideas will work more fluently. Plus, in my case, I like the concept and sketching stage of an artwork (**Fig01**).

STEP 2: MODELLING

I began with a map and copied the edges. Working with loops, I started with the mouth and the eyes, always keeping the biped in mind (**Fig02**, **Fig03** and **Fig04**).

STEP 3: SETUP

I dedicated this stage to refining the skinning and biped setup as best as I could. If this proved successful, it would then be necessary to optimise the mesh with further subdivisions (**Fig05**, **Fig06** and **Fig07**).


Fig.01

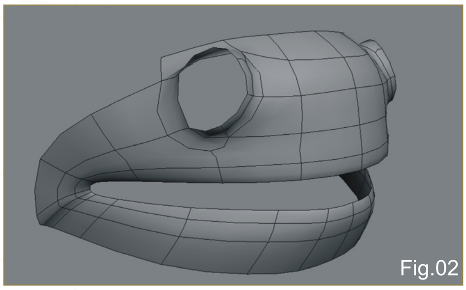


Fig.02

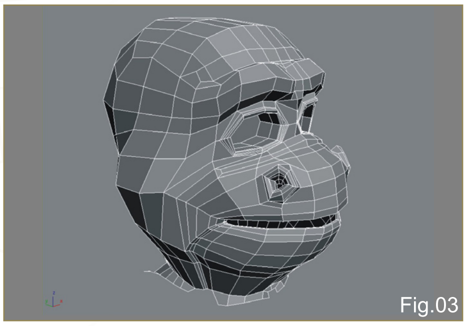


Fig.03

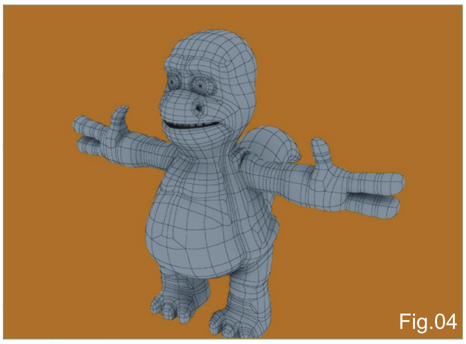


Fig.04

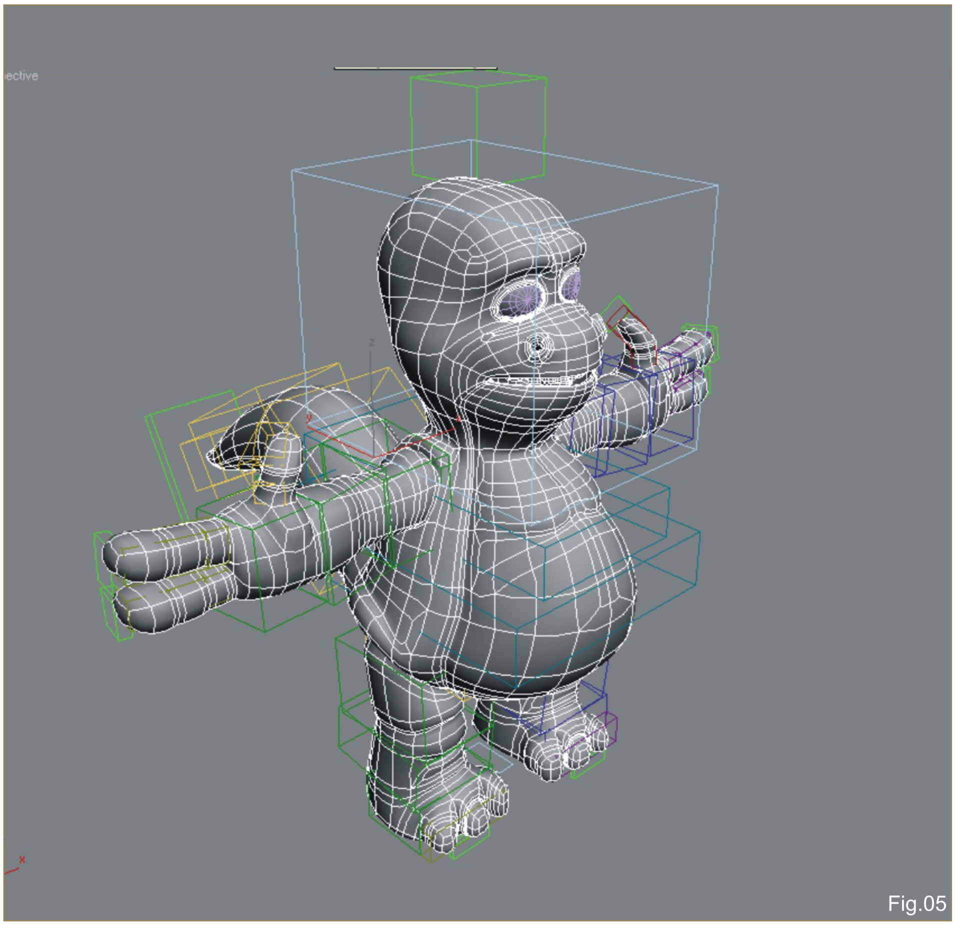


Fig.05

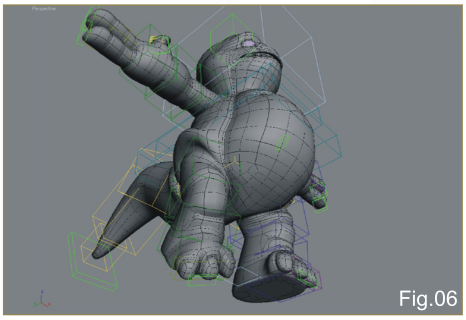


Fig.06

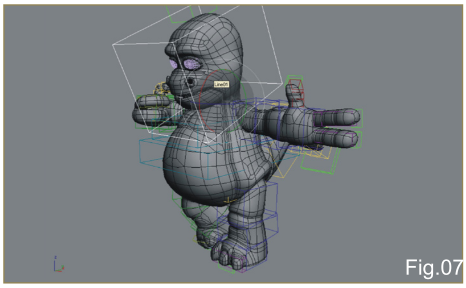


Fig.07


Fig.09

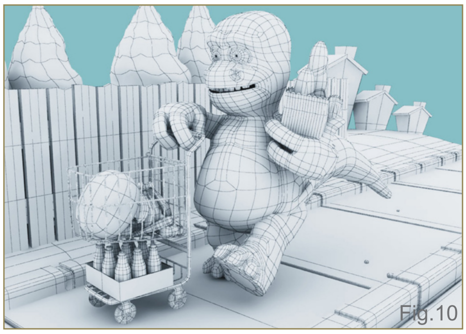


Fig.10

Step 4: Texturing and Lighting

I dedicated this stage to adjusting the appearance of the scene, whilst texturing the surfaces. The lighting tries to achieve a more finished look, as professional as possible (**Fig08**, **Fig09** and **Fig10**).

Manuel Perez Escudero

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http://mapestudio.blogspot.com/


Fig.08

1ST – NORMAN ANDERSON

Hi, 3DCreative readers! This is my first participation in this challenge; I have always followed the great works presented in the Threedy forums, and in October I decided to participate for myself…

STEP 1: CONCEPT

My first idea was completely different to the final image, but the short time scale for the project made me simplify and change some concepts, although I always kept my original dino style in mind. First of all, I did some research on the Internet, where I found some images to study the shapes, colours and proportions of herbivore dinosaurs. I chose the Brachiosaurus in the end, because of the simplicity of this breed of dinosaur, and the charisma of this big, inoffensive dino.

STEP 2: MODELLING

I usually work with the box modelling technique for all of my models, and my SnorkDino was no exception. I created a box and started extruding – moving and rotating until I had a shape which satisfied me (**Fig01**). I then added some loops and better defined the topology. The legs and the head were modelled separately. These parts required a lot of details, so I preferred working on them separately to have more control over the smaller details (**Fig02**). The next step was to export an OBJ to ZBrush and make the final adjustments, such as making the wrinkles and playing with the proportions a little (**Fig03**). To put my dino in the pose I wanted, I built a basic skeleton and applied a simple bind skin (**Fig04**). For the props, I used the same method: I started modelling with a primitive, then defined the shapes (**Fig05**). The grass was created with paint effects and then converted to poly, so I could have more control over the texture and illumination.

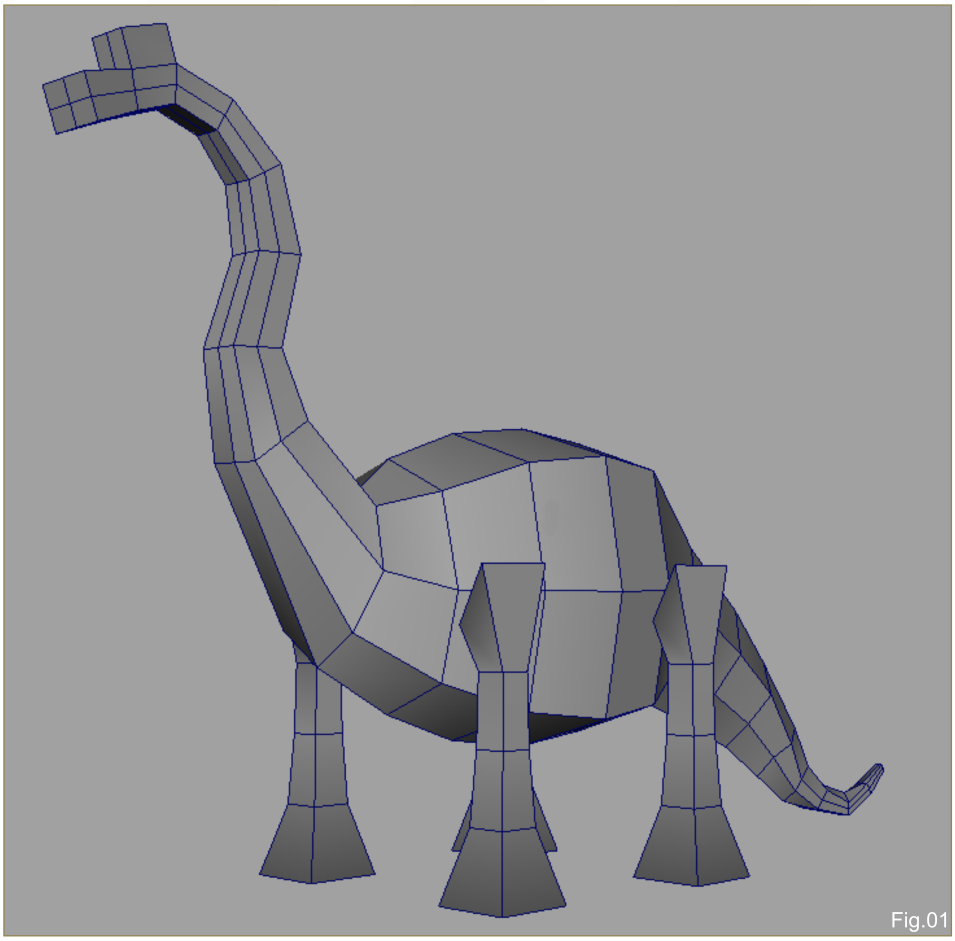
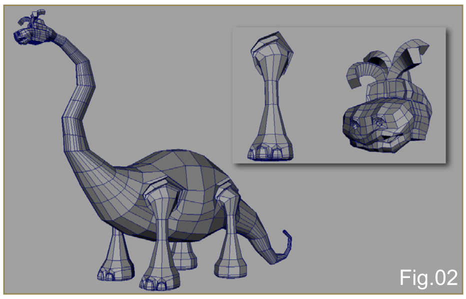


Fig.01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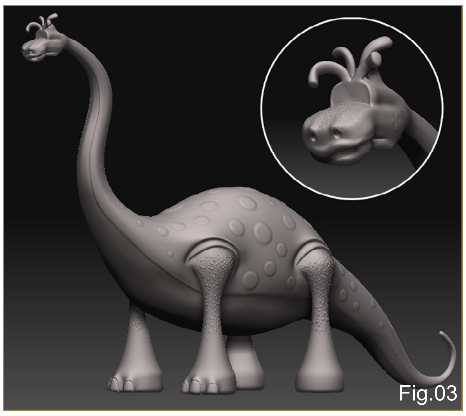
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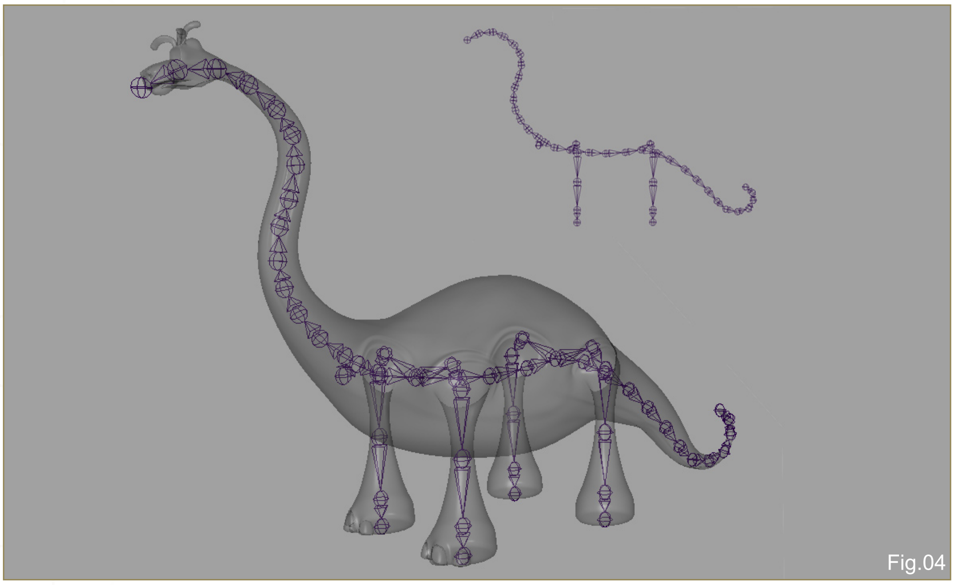
Fig.04

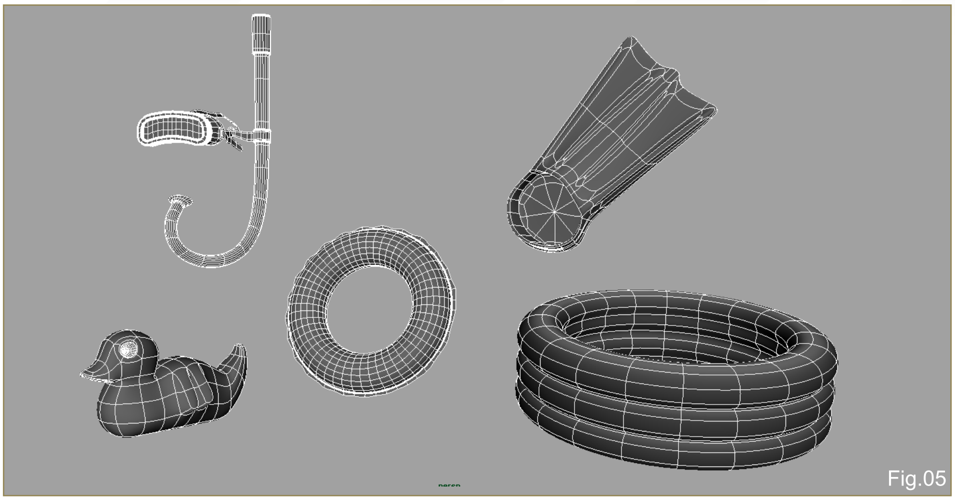
Fig.05

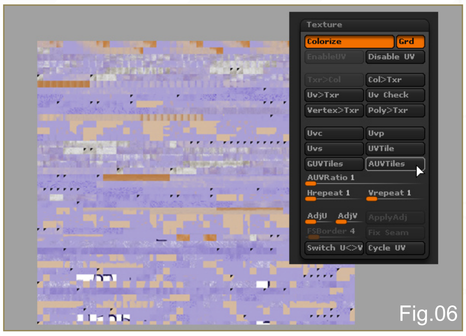
Fig.06

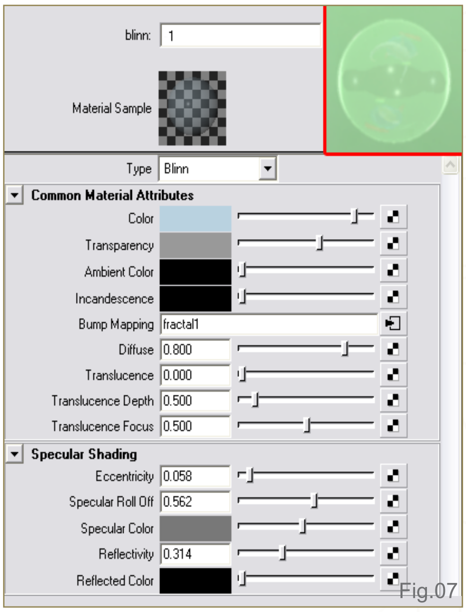

Fig.07

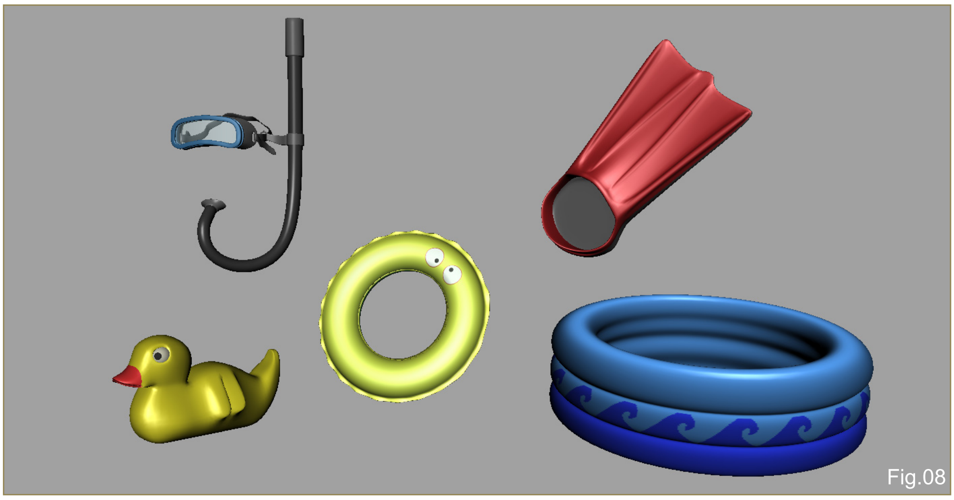
Fig.08

STEP 3: TEXTURING

Texturing was simple because I chose a cartoon look. With the model in ZBrush, the first step was to apply the Adaptive UV titles, which have the function of automatically mapping little squares. This is both a good and a bad method. It's good because it saves the time of mapping, but bad because the unique way of editing textures is inside ZBrush (**Fig06**). I then started painting with the Polypaint tool. This is a great ZBrush tool! As the name already explains, the painting is done directly on the 3D object's polygons, and after it is converted to texture. I exported this texture in TGA with the resolution of 1024 x 1024, and applied a blinn material inside Maya. The bubbles and water materials look almost the same. I used a blinn material with blue colouration, with 70% transparency for the bubbles and 40% for the water – both with a little reflection (**Fig07**). The other objects in scene were applied with a blinn material, colours or with textures painted in Photoshop (**Fig08**).


Fig.09

STEP 4: LIGHTING, RENDERING & COMPOSITING

When everything was in the right place (**Fig09**), I started setting up the lights. I used a simple 1,000 intensive Key light which I positioned behind the camera, a 0.400 intensive fill light to soften the shadows with blue colourisation, and a 2500 intensive back light (**Fig10**).

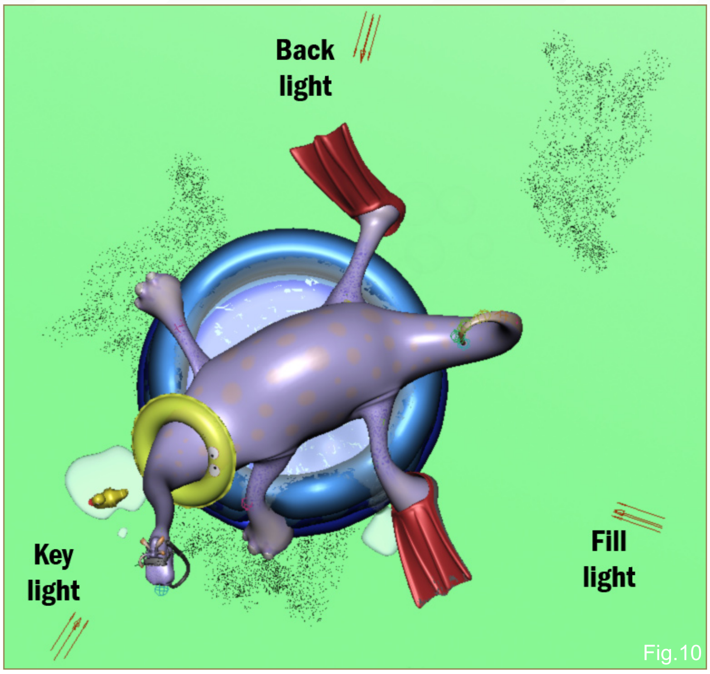

Fig.10

For the background, I created a huge plane and applied a bend modifier, creating an infinitive background, and I then applied a ramp shader with a gradient from green to white. Using the Mental Ray renderer, I turned on the final gathering with basic settings, and applied an HDRI texture. I then made some render tests and adjusted my settings accordingly. I rendered three passes: a colour pass, an occlusion pass, and a depth pass (**Fig11a**, **Fig11b** and **Fig11c**). Maya has presets that make our life much easier. You just have to select the objects you want to include and create a layer in render editor – simply right-click on Layer > Presets. There


Fig.11

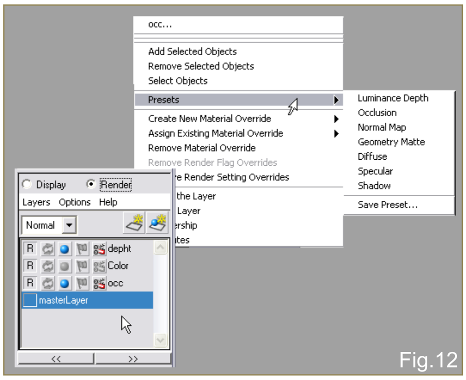

Fig.12

you will find some options, like the one I used (**Fig12**). The final process was transferring everything to Photoshop and putting everything together in the order I rendered. For the depth layer, I pasted it in a new alpha and applied a Lens Blur filter, where I would be able to make little adjustments. Then, to finish up, I adjusted the colour, masked some little render bugs, and gave more life to my final image (**Fig13**).

Fig.13

I hope you like the final image and have enjoyed this Making Of. If you have any doubts or any questions, please send me an e-mail. Thank you all at 3DTotal for this opportunity!

NORMAN ANDERSON

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Bugatti Veyron

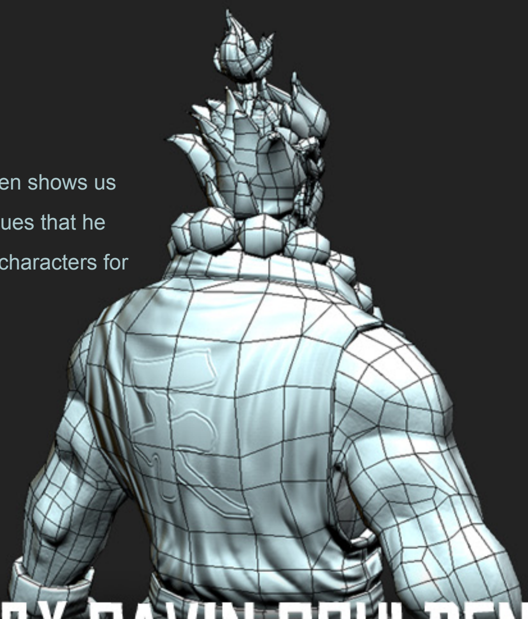
car modelling series

Over the course of the next seven months we shall be running an in depth tutorial on how to go about creating the amazing Bugatti Veyron. The series will cover an in depth and comprehensive guide to modelling the car from start to finish and will focus on the key techniques and stages invloved in building the chassis as well as details such as the windows, lights, vents, petrol caps and engine parts etc. We will then move on to creating the wheels including tyres and hubcaps before going on to building and incorporating an interior, namely the dashboard and seating. The series will proceed with a section on creating and applying materials for the numerous parts of the car such as the paintwork, chrome, rubber and glass before concluding with a tutorial devoted to setting the scene for a finished render. This final part will cover the importance of a good lighting rig and light parameters, as well as the importance of a camera and the integral part that the rendering settings play in showcasing the model for a portfolio.

This Month :

MODELLING THE CHASSIS: PART1 - BASICS

"Be sure to leave enough edge loops along the forearm of your character to allow for the twisting of the wrist..."



In this tutorial, Gavin Goulden shows us the processes and techniques that he tries to follow when creating characters for animation...

BY GAVIN GOULDEN

MODELLING A CHARACTER FOR ANIMATION

MODELLING A CHARACTER FOR ANIMATION

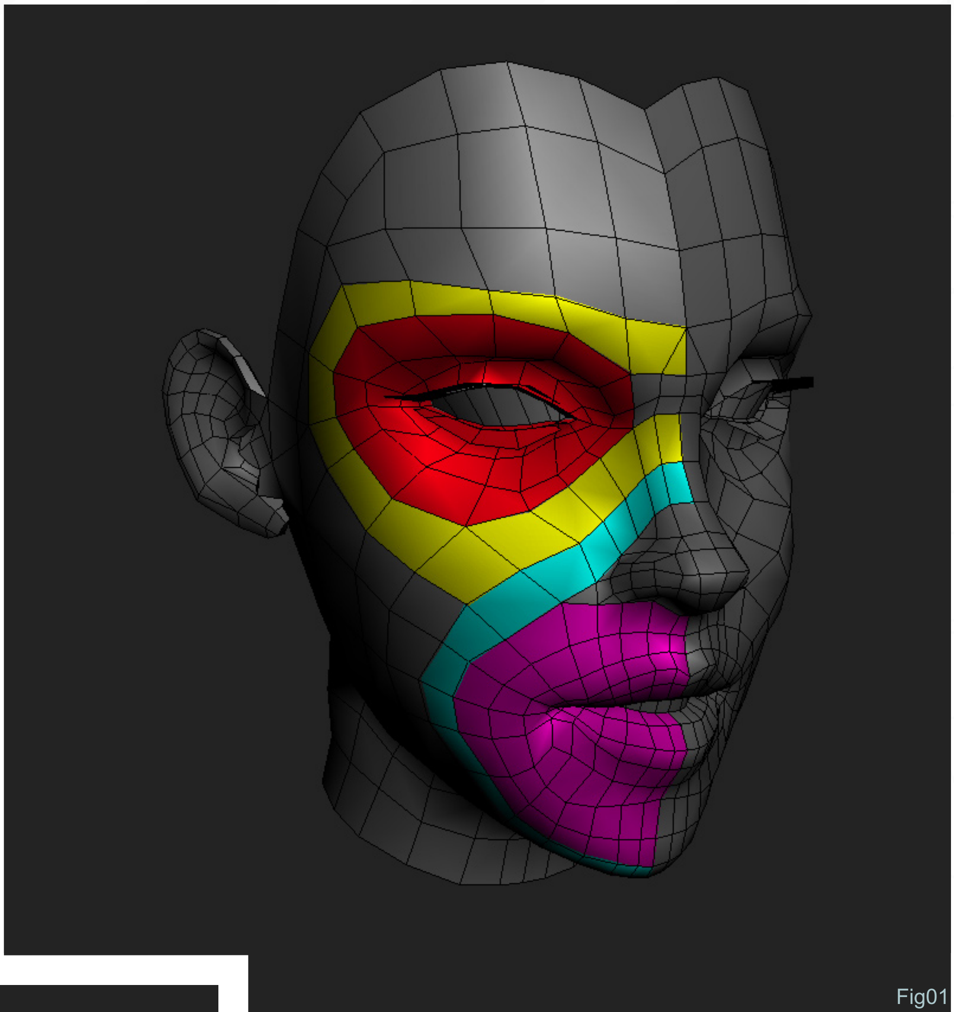


Fig01

Introduction

There are many different techniques that different artists use, but at the very least I hope that these tips will help you to avoid getting beaten up by animators after work!

Face

The face is probably the most complicated part of a character to create. Most of the personality comes from it, and straight away, if something is off, the audience can tell. Aside from needing to make the face look interesting, rules also need to be followed when modelling to make sure it will deform properly when speaking and showing emotion.

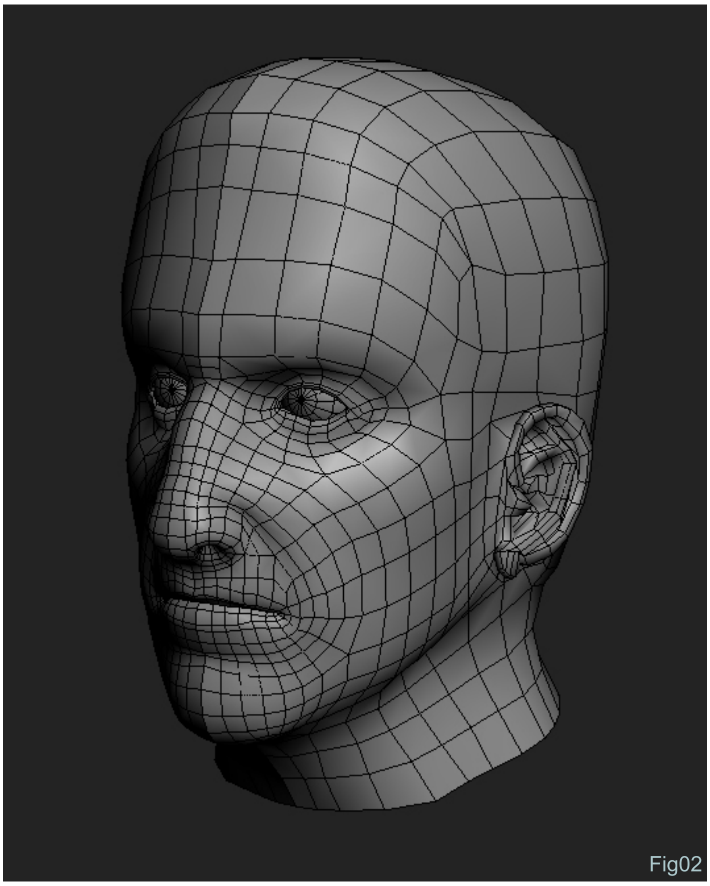


Fig02

Different engines handle facial animation in different ways. Unreal allows for bones to be setup in the face. Source relies on a series of morph targets. Either way, proper topology is needed to make sure the face doesn't pinch or stretch awkwardly and make your character look ugly (**Fig01**).

As you can see in the image above, I have coloured in these sections so that you can see them easier. The red section is a series of loops around the eye that start at the eyelid and reach out to the eye socket/ cheek bone. Keeping this area in nice, even edge loops allow for proper deformation when blinking, squinting, eyes widening, and so on. If you have extra polygons to spend, you can add half loops to the eyelids or edges coming from the corner of the eye that will help define creasing. The next area, which can be effected by the red area, are the polygons marked in yellow. It defines the shape of the eyebrows and cheekbones. This group controls eyebrow movement and also acts as a buffer between eye and mouth animations. If you open your eyes wide, you can feel

your eyebrows raise, and this is more or less what this group replicates on your model. The next section, coloured in blue, loops from the bridge of the nose and under the lips. This area deforms when the nose is wrinkled or the mouth is open wide. The last area, coloured in pink, is the loops around the mouth. It is very important to keep these edges clean and evenly distributed around the entire mouth. This area will deform when talking, smiling, yawning, and so on. Always try to keep an edge going from the corner of the mouth as this is the part that will define your mouth shape. It also allows you to pull out some vertices at the corner of the mouth to add the mass of fat cheeks. If all of these groups are created well, everything will flow together nicely while animating and sections outside of them, such as the chin, cheeks and forehead, should connect together and deform properly (**Fig02**).

Again, since different engines do different things, you may have limitations on what you can do for eyes and teeth. The characters in HL2 use an eye shader that is assign to flat polygons where the eye should be. The iris/pupil is a floating texture on top of an eye “base texture” (bloodshot/white eyes) that moves according to the player’s view and the properties you give that character’s eye position information. Other engines use a more traditional method where the eye is more ore less a half sphere, stuck inside the head and controlled by nulls to move it as needed. It really depends what you can and want to do. The outside geometry should stay the same regardless, and the only thing that may need to be added, other than the eye geometry, is very simple eye socket geometry just to make sure you can’t see through the model’s head when the eyes move.

The teeth/tongue/mouth bag really depend on the importance of the character and what it will be doing. HL2 mostly just had curved planes with a teeth texture on it, which were placed inside of a dark red textured mouth. Some games, such as wrestling/fighting games, actually have more defined teeth and mouth parts. The reason for this is because, since there are so few characters on screen, they can afford that. Plus there are a lot of close-ups of facial animation for victory sequences and things of that nature.

Shoulders

There are a few different ways to create shoulders that deform well for animation. Like most things, it depends what you have to work with regarding engines and model limits. One method is to extrude polygons straight out of the shoulder to create arms. Although this will deform fine and probably saves you some

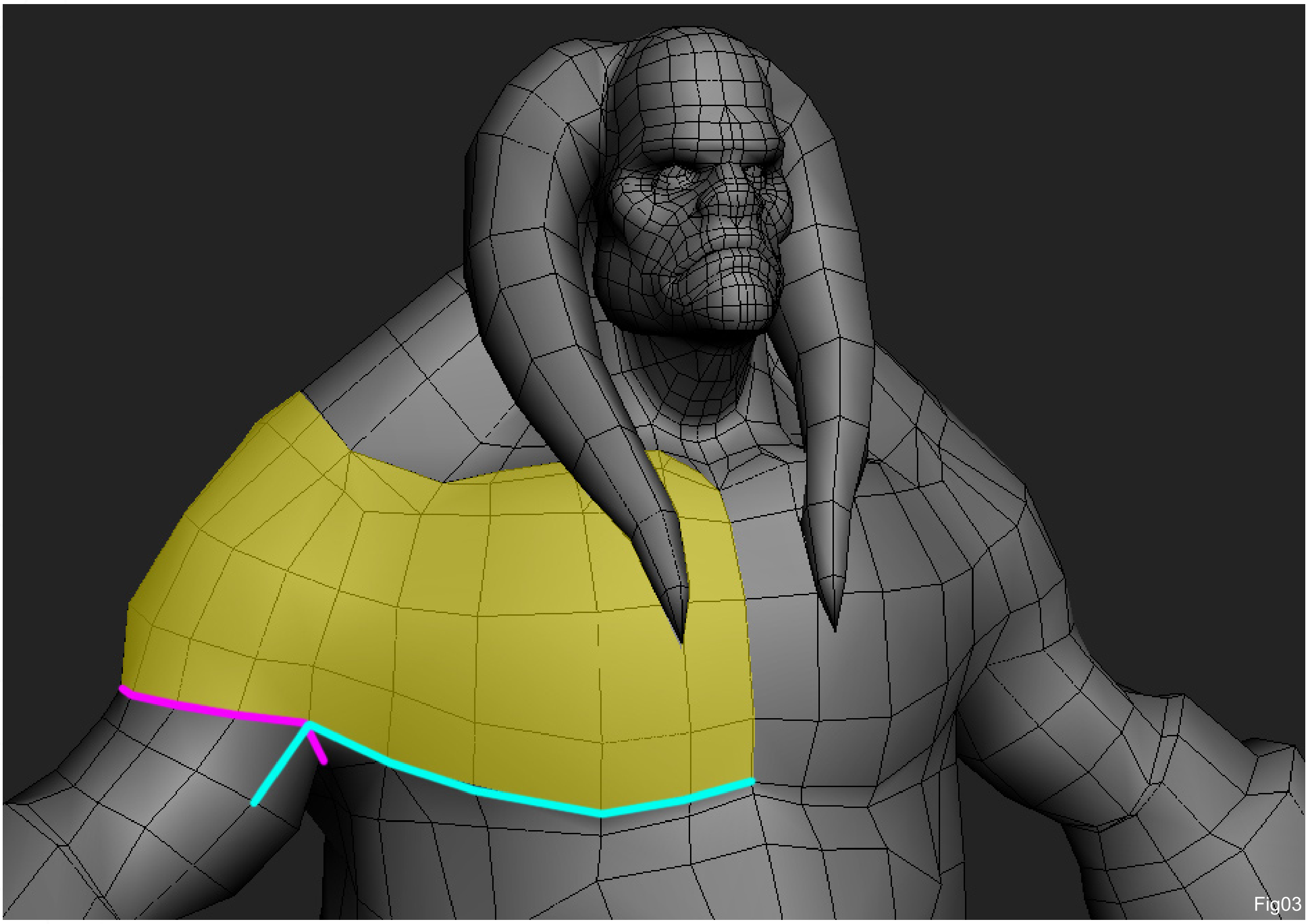


Fig03

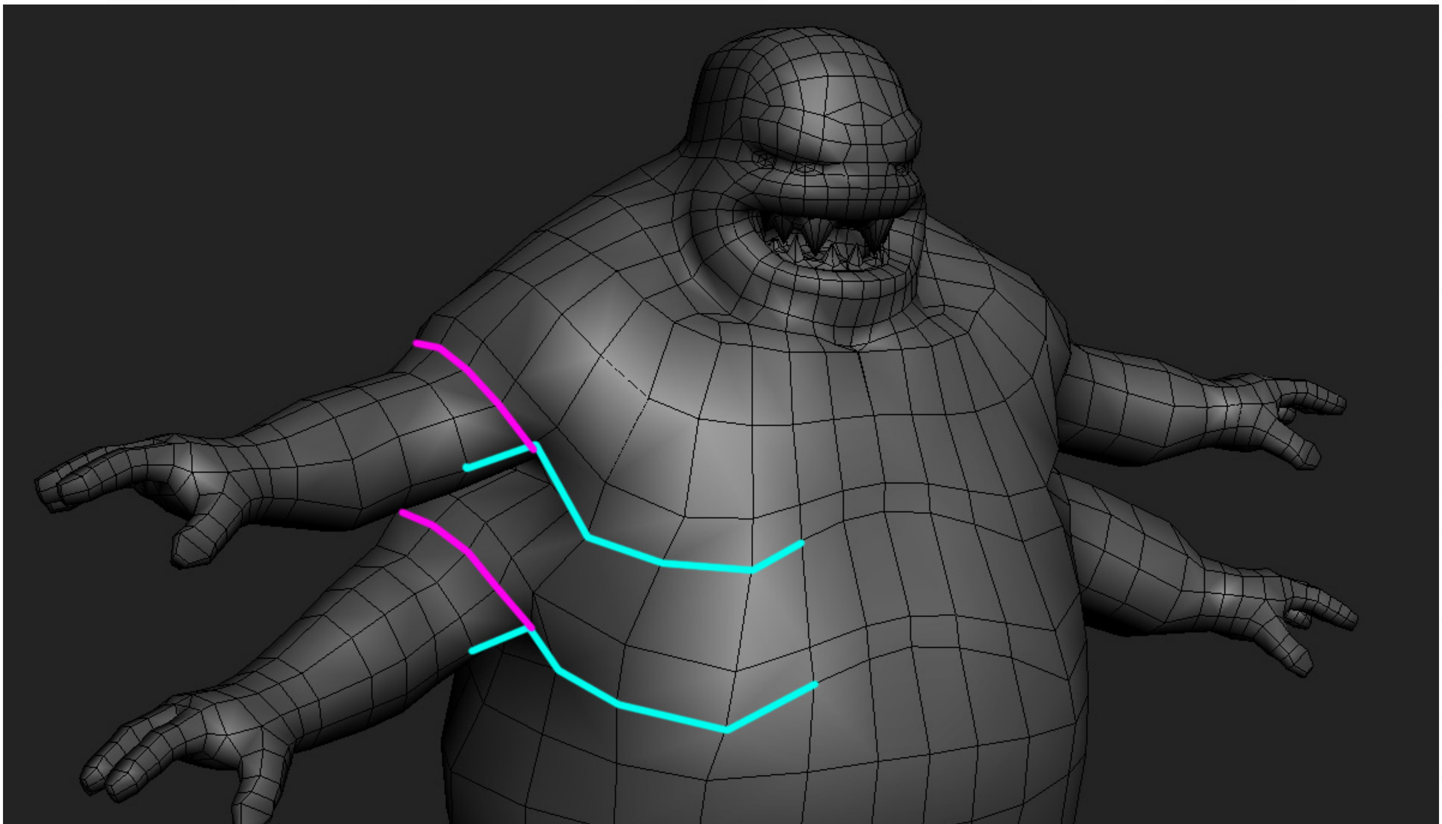


Fig04

polygons in the process, I like to define more of the muscles and build the arms out from underneath of the shoulder muscles.

By defining the deltoids and connecting them to the pecs, you end up creating a “cape” on the upper torso of your character. If you raise your hand behind your head and place your other hand on your chest, you can feel your chest muscles stretch. It also causes your shoulder to collapse into the trapezius muscle. Creating this “cape” allows the shoulders to keep their shape as the arm raises, and also mimics real life anatomy by effecting the chest as the arm moves (**Fig03**).

In the image above I have highlighted two main edges to follow. The pink lines indicate the edge loop that connects the arm to the torso and defines the deltoid heads. The blue line indicates the bottom of the pecs and flows into the bicep – the line that stretches when performing the physical activity mentioned above (**Fig04**).

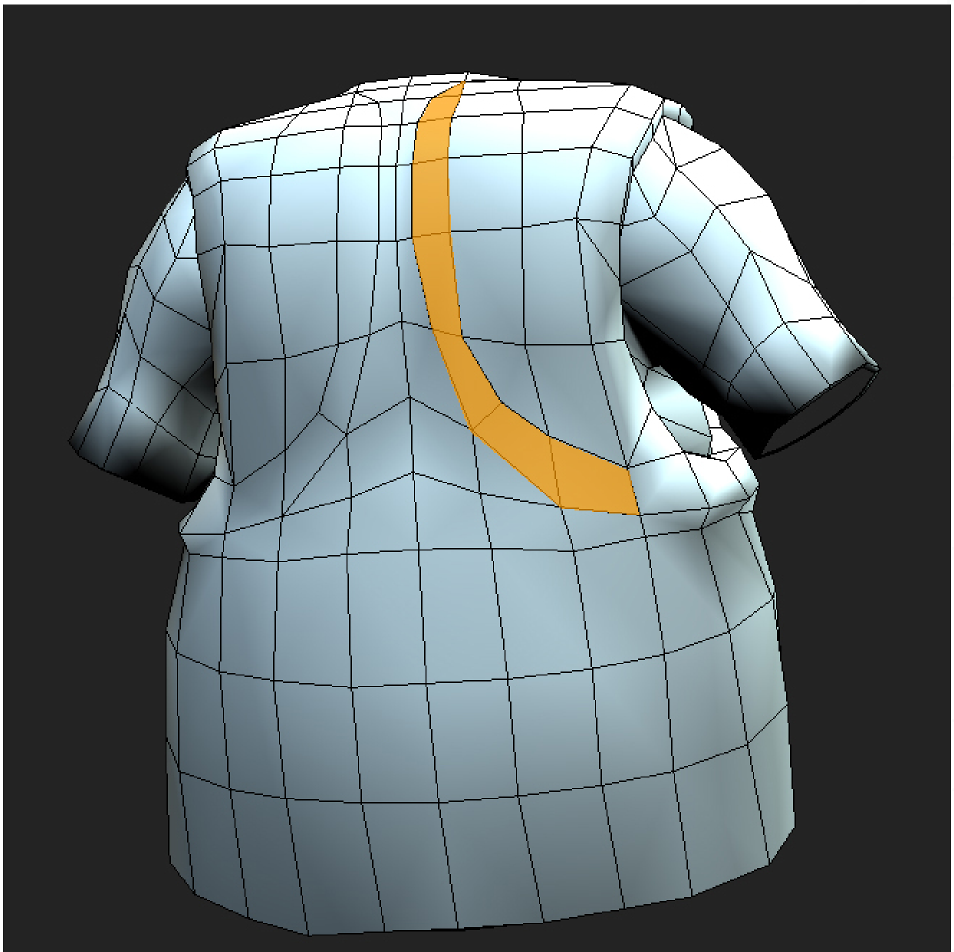


Fig05

Good practice for the back is to define the shoulder blades and to create edges that will collapse when pushed towards the centre of the back. You can achieve this by creating "half" of an edge loop, starting at the base of the neck and ending just under the shoulder blade. This will more or less outline the shoulder blade, and when the arms are stretched back to their extreme pose it will cause them to collapse into the middle of the back. I have highlighted this area in my example. Of course, this is if you have extra polygons to spend. Just be sure to loop around the shoulders and leave enough geometry between them and the spine so that there is no awkward stretching (**Fig05** and **Fig06**).

Arms/Elbows/Legs/Knees

Much like the shoulders, I try to define muscle groups as best as I can when modelling the


Fig07a

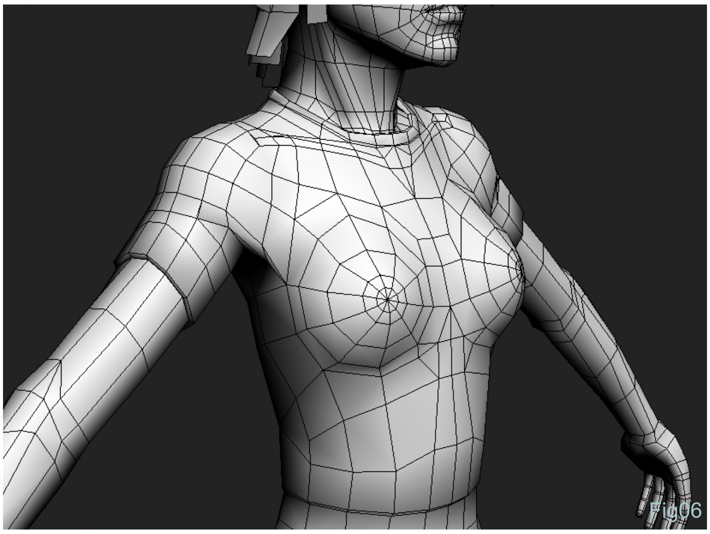


Fig06

arms. Not only does this break away from the "tube" look, but it also helps deformation. By defining areas like the bicep and tricep, you're allowing the mesh to deform in isolated areas. For example, a well defined bicep will stretch and bulge up when flexing much smoother than a cylinder... or will at least look more natural (**Fig07a** and **Fig07b**).

For elbows, I generally try to have three edge loops. More or less, one loop devoted to the upper arm muscle, one devoted to the forearm,


Fig07b

and the middle loop a blend between the two, and to allow the elbow to keep its shape when the arm folds. Defining the elbow really depends on your needs. Would you define the elbow on a female model or child? Probably not – it would look really out of place. But for monsters, cartoon characters, muscular people, and so on, it may look nice (**Fig08**).

Be sure to leave enough edge loops along the forearm of your character to allow for the twisting of the wrist. If you make a fist and rotate it back and forth you can see the muscles on your forearm twisting slightly. Unless you're a robot, of course. By adding this geometry to your model, the wrist will be able to twist and the geometry on the forearm won't collapse on itself when this happens.

I treat the legs a lot like the arms. The knees will practically be executed the same way as the elbows, by using three edge loops for deformation and shaping the kneecap if it is applicable (**Fig09** and **Fig10**).

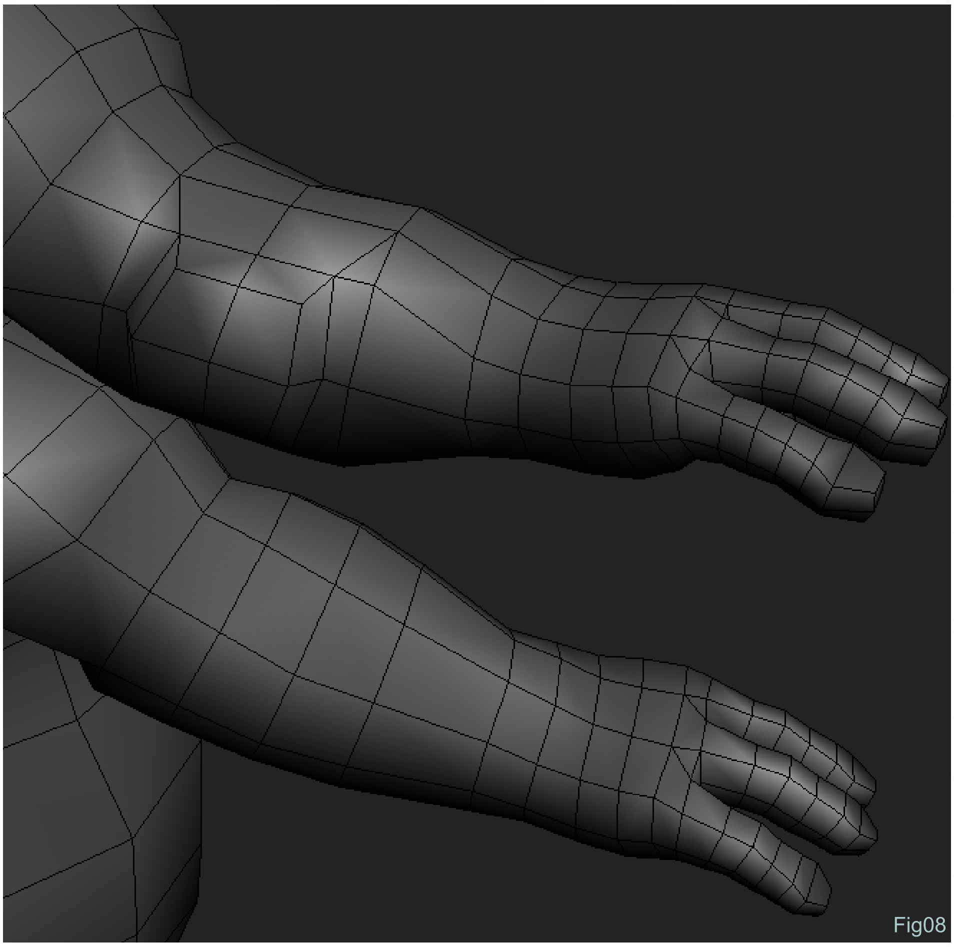


Fig08

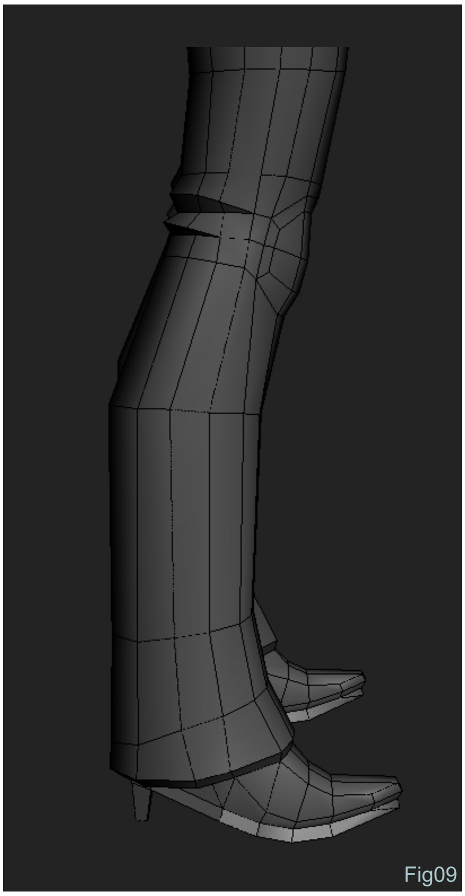


Fig09

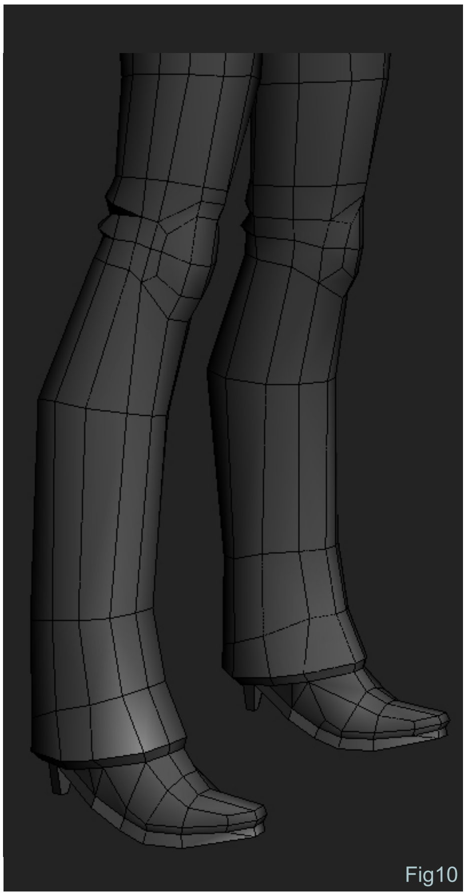


Fig10

As for the rest of the leg, like many things, it really depends on what you need for your character. Muscular barbarian type characters in a fighting game may allow/require you to build in the leg muscles, while some (and probably most) characters will only need you to rough out the shape of the entire leg, as they are probably wearing clothing or aren't overly muscular.

Hands

Without question, hands can be difficult to make. There are a lot of subtle parts to them, and depending on the complexity of the character there could be a large amount of detail that needs to be modelled out. All hands basically follow the same rules, though. If they're huge cartoon hands, demon claws or just the hands of an average Joe, you'll want to define the mass of the palm, knuckles and fingers. Each knuckle on each finger should have at least two loops for deformation (again this depends on how many polygons you have to spend and the importance

of this hand. First person view? Secondary character?). You'll also want to make sure that these fingers connect well into the hand by adding a loop to define the knuckle. For the thumb, you'll want to make sure that the centre edge of the thumb flows into the palm and to the wrist, so that when the thumb bends towards the centre of the hand it deforms properly over the mass of the palm, and when it is stretched back towards the wrist the hand will still maintain shape (**Fig11**).


Fig11

WAIST

The waist topology is a lot like the shoulder blade topology mentioned above. You'll want to have edges flowing not only around the crotch, over the hips and across the butt, but you'll create edge loops just under that circle around the leg and raise them up around the hips. Think of it as if you were modelling a pair of briefs on your character. The reason for this, much like the arms, is that it will help maintain the shape of the hips and butt during animation. By having counteracting lines for the hips and ribcage, the body can fold on the side naturally. When the legs are raised to an extreme pose


Fig12

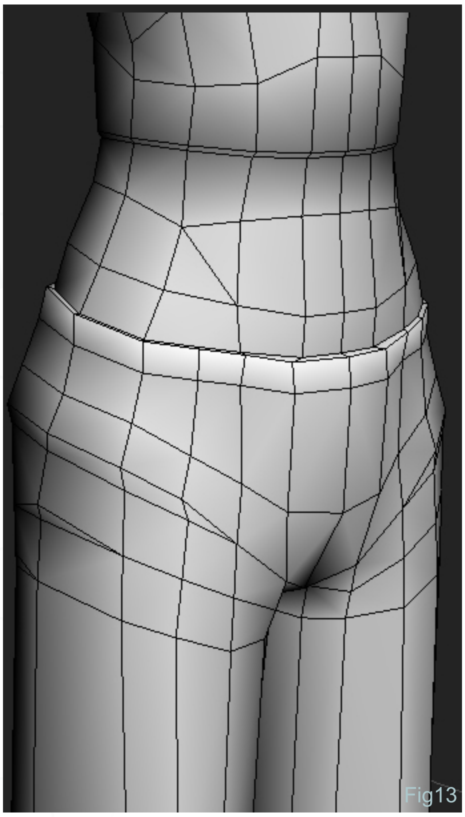


Fig13

to the side of the body (as if the character were doing the splits), there should still be some mass between the top of the leg and torso, and by using this topology you can achieve that (**Fig12** and **Fig13**).

CLOSING

Hopefully this will set you on the right path to creating characters that hold up during animation. Even though your character may not exactly be something "normal", the general rules will still apply. Dragons still need to be animated, and even though the anatomy would be totally different, the lessons you learn creating normal biped characters can still be applied.

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POST PRODUCTION
PART 2

"IT'S IMPORTANT TO REMEMBER THAT YOUR SPECULAR PASSES WILL LIGHTEN UP YOUR IMAGE CONSIDERABLY, SO DO NOT GO TOO LIGHT AT THIS STAGE. WE CAN ALSO BRING BACK A BIT OF THE DARKER TONES IN THE IMAGE LATER..."

The second part of this two-part tutorial, by Wayne Robson, takes us through adding some of the finishing touches in Post Production...

POST PRODUCTION PART 2

Created In:

ZBrush and Photoshop

Fig01

Post Production: Part 2

In the last part of these two articles on Post Production (you can find Part 1 in Issue 028 of 3DCreative Magazine), we made a number of render passes within ZBrush and exported them as PSD files. So far, if you followed along with the article, you should now have the following passes:

A beauty pass
An ambient occlusion pass
A number of specular passes of varying types
A matte pass (**Fig01**)

In this section we will be using and changing these passes to produce our final render. By compositing these passes we give ourselves a much easier work flow and can produce shader effects that are either impossible or extremely difficult in ZBrush, currently. Firstly, you will need to open all these passes in Photoshop and arrange them in layers, as shown in **Fig02**. The order is important because when dealing with compositing layer passes, a specular layer, for example, would give a different look if on top of the slayer stack as opposed to further down it (**Fig02**).

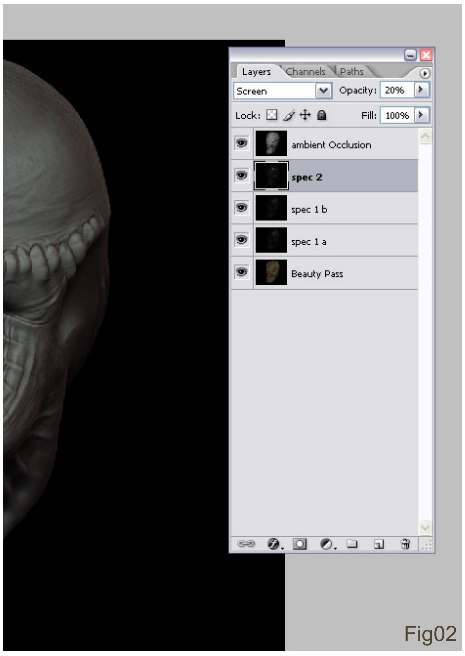

Fig02

At the bottom, we have our beauty pass, which we are going to use as a basis for the final composite. First of all, duplicate this layer and we will adjust the levels to give us a bit more contrast and to bring the colours out a bit. An old compositing trick to get a more film type look to a render, is to cut your blacks and boost your whites using either the levels control or curves. Both do similar jobs, but I personally prefer to use the levels control. This is simply as I use it more often than curves in my current work flow. However, if you are more used to using curves, then you would want to make an 'S' shape in your main RGB section of your curves dialogue box (**Fig03**).

I also now boost the overall saturation of the colours in the beauty pass with the 'Hue/Saturation' control, found in the image menu under adjustments. This helps to stop any 'washed out' look we may have as a side effect of exporting our image in the last session (**Fig04**).

It's important to remember that your specular passes will lighten up your image considerably so do not go too light at this stage. We can also bring back a bit of the darker tones in the image later, using our ambient occlusion pass that will help to counter act any overly light areas that the specular passes cause. As you can see, I've purposely left mine quite a bit darker than I need it right now, for this very reason.

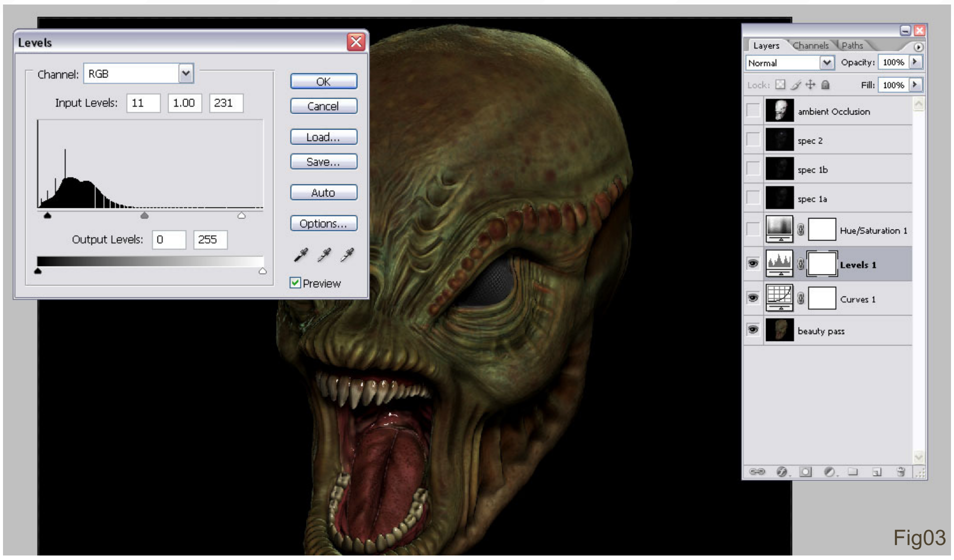

Fig03

With the beauty pass set up now, we can concentrate on our specular passes and tweak them as needed to suit our purpose. In the last session you'll remember that we made a number of them with varying specularities. They went from very wide specular, to very tight specular, and the reasons for this were to give us a 'choice' at this stage, whilst also giving us some creative freedom at the composite stage. It is important when compositing a set of render passes not to feel 'walled in' by earlier decisions, where possible (**Fig05**).

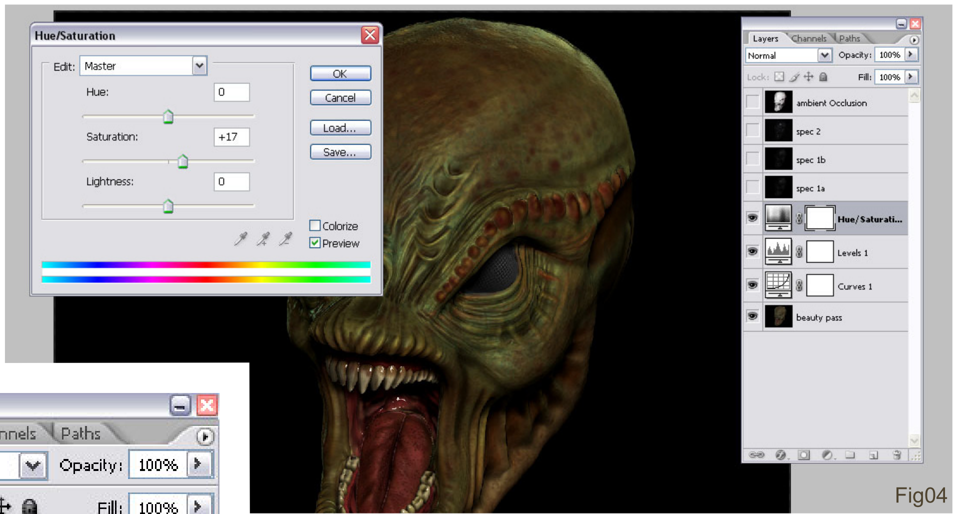

Fig04

The first (and widest) specular layer, I first of all

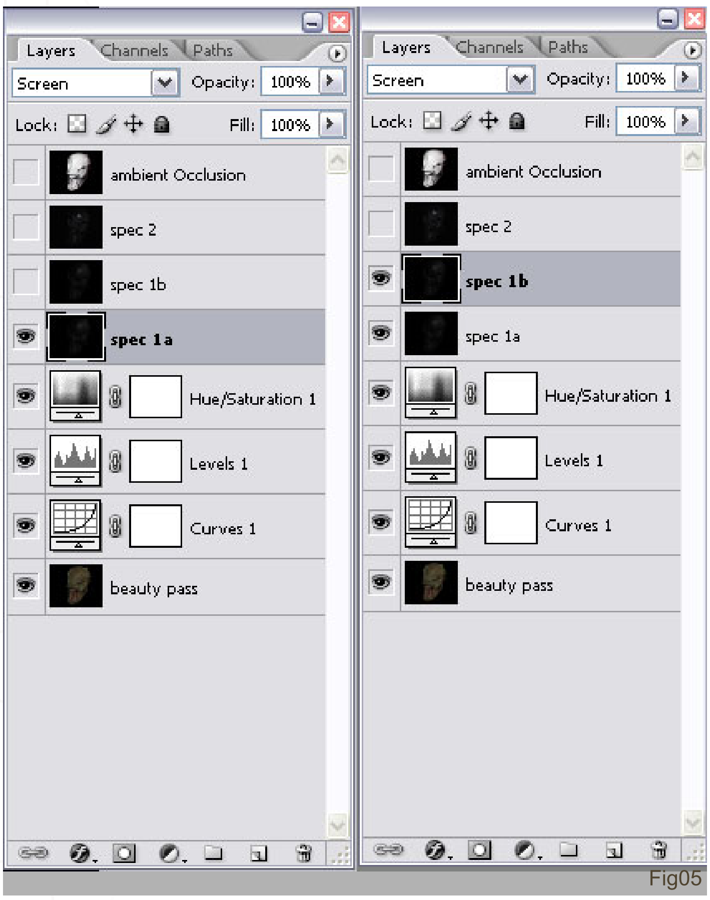

Fig05

set to a blend mode of 'Screen'. This lets only the lighter areas through and to all intents and purposes makes the black areas invisible to us. As this was made with a very low specular intensity in ZBrush, I usually copy this layer again (by using either Layer > Duplicate, or simply by pressing Ctrl + J with the layer selected). This allows me to get a slightly more subdued effect which is less harsh than if I had simply cranked up the intensity in ZBrush.

You should also notice that this has considerably lightened our image up already. Don't be worried if it looks too light at this stage, as we will be darkening it later on and can always go back and tweak everything at the end to fine-tune things.

Next I used the tightest specular pass. My reason for not using the others were because I realised that this would make the model look like it had a coat of varnish and not make it believable. But please bear in mind that your model could very well have different requirements, so that's why I have included these passes in the first article (**Fig06a**, **Fig06b**, **Fig06c** and **Fig06d**).

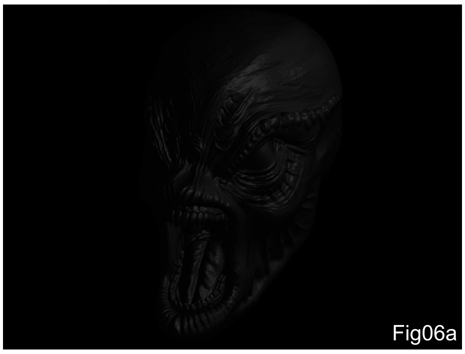
Fig06a


Fig06b


Fig06c

The tightest specular pass was also set to Screen mode and the opacity turned down to 20% so that it didn't overpower the image. You may want to colourize your specular pass before doing this by using the 'Hue/Saturation' settings with it set to 'Colorize'. As this will only colourize the white areas of your image it is perfect for adding a bit more colour to a specular pass. I should also add that, in many cases, an ambient occlusion pass can also be colourized in a similar way so that it better matches with the texture of your model. For a human skin tone you may wish to make your ambient occlusion pass a sort of reddish brown (**Fig07**).


Fig06d

Our ambient occlusion pass will help to bring all of this together for us. As it stands at the moment, if its blend mode was set to Multiply, you'd find it is way too dark to use because it's as if most of the lights have been turned off on your model. To lighten it to a level that is useable, I use a two step process. It could be done in one step, but I find it faster for my work flow to do it in two steps, strangely enough.

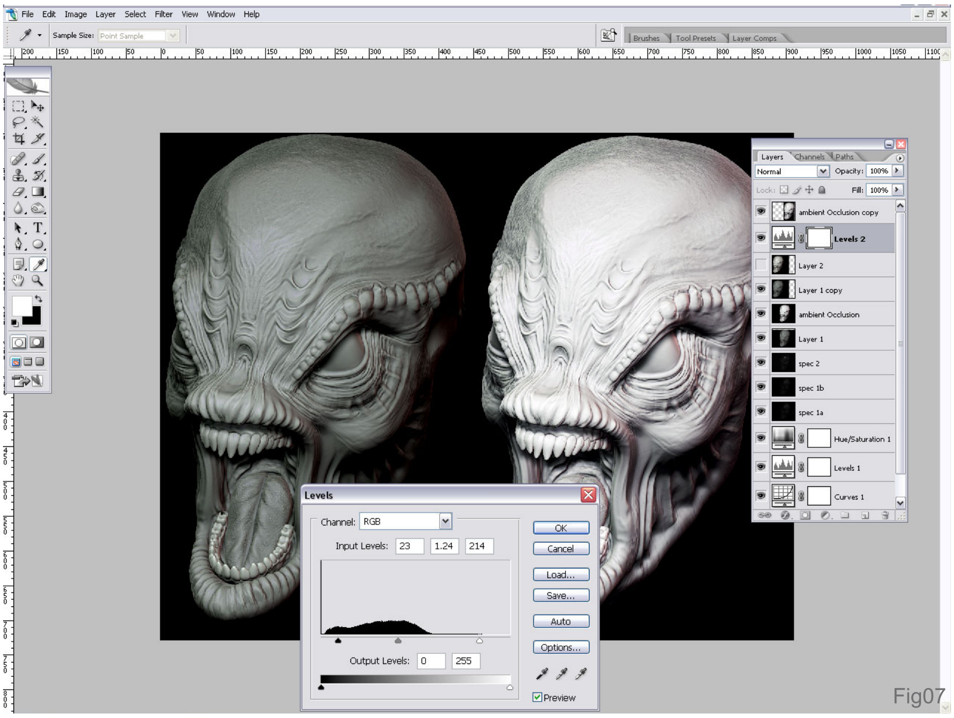

Fig07

With your ambient occlusion layer selected and still set to a Normal blend mode, go to Image > Adjustments > Auto Levels, and you will see that it lightens it up a fair bit, but if you try Multiply now it will still be too dark in some areas, whilst others may be correct. In short, it's not of any use so we need to tweak it further still.

To get the look we need, make sure that, again, your ambient occlusion layer is set to a Normal blend mode and bring up your Levels dialogue box. Again, I'll point out that this can be done

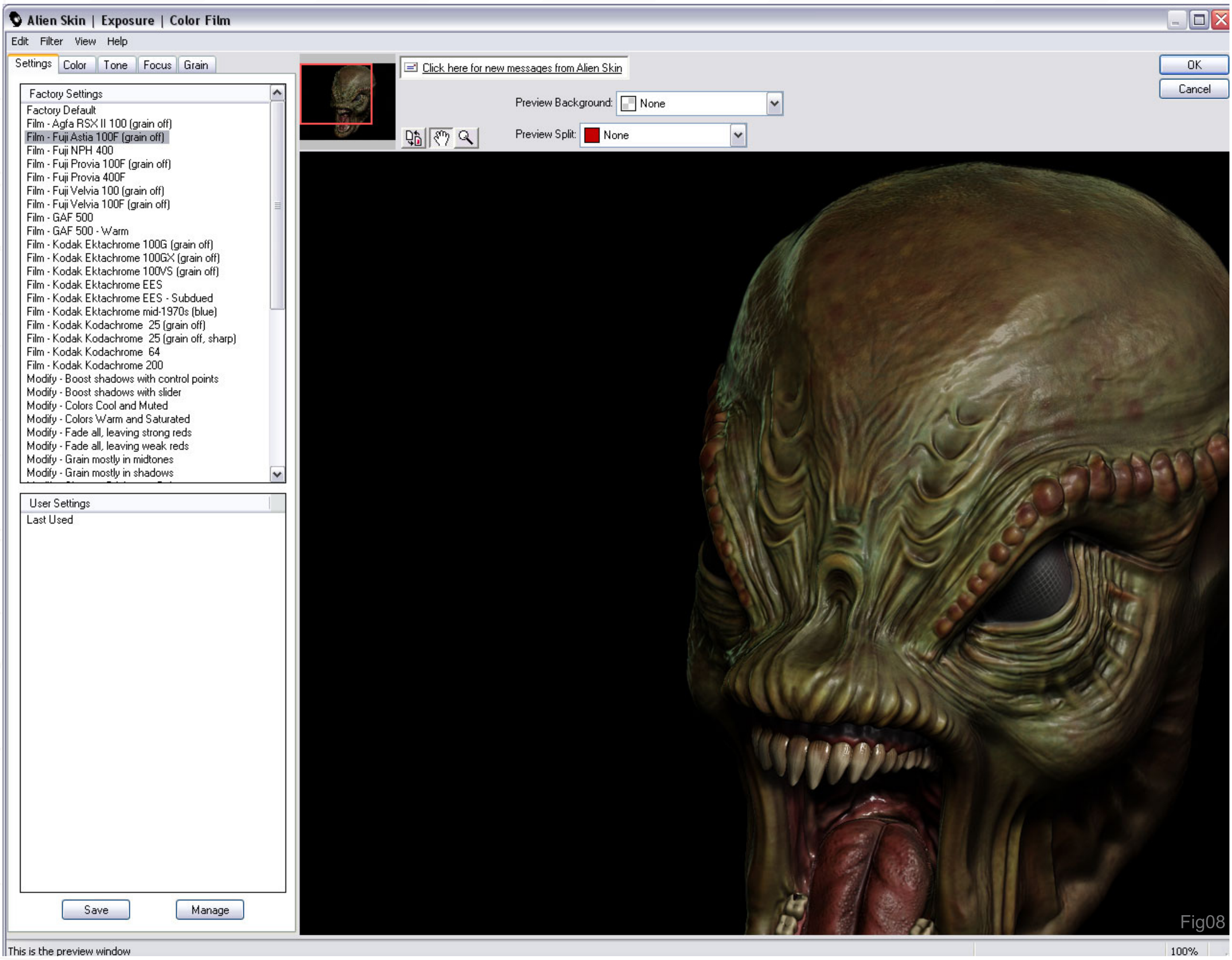

Fig08

using your Curves dialogue, as I mentioned before, for those who are more comfortable with that. As shown in **Fig08**, pump up the blacks a fair bit and boost the whites. You'll also probably, for your model, need to play with the middle tones with the centre slider. Just to be on the safe side now, duplicate your ambient occlusion layer and turn off its invisibility. This will be your 'back up' in case the levels need further adjusting later on. Now, with your Levels layer selected, merge down (by either pressing Ctrl + E or going into your layers menu). When we now switch this layer's blending mode to Multiply, you should notice the nice effect this gives. The plus side of using the green clay material by Ralph Stumpf, is that it acts as a directional ambient occlusion which further adds to the realism of the render. You can now tune the opacity to something that you feel looks right for your image. As I've used this work flow quite a lot, my original settings for the shaders were bang on the money for most of my layers. With a bit of practice you may not need to adjust yours much either, but at first be aware that it can take a few goes to get used to this work flow.

Now go back over each layer and adjust everything to your taste before we continue with the final tweaks to make our final render. Once you have done this, save your composite as a new PSD (for further use later on) and then merge all your layers down into one. Bring up your Levels dialogue and again boost your blacks, and maybe very slightly adjust your whites, to give a nice balance. Also, don't be afraid to combine this with your 'Brightness/Contrast' controls as well, if it gives you the look that you're after (**Fig08**).

At this stage, for the final polish, I use a plug-in called Exposure, by Alien Skin, that simulates a number of camera and film types. I simply merged all layers again first of all, and then selected the 'Astia' preset and called it a day.

And that's it, we're done! As you can see from our original exported beauty pass and our final render, there is a big difference that would have taken much longer to achieve with a shader and lighting set up in ZBrush.

This is a simple version of a composting work flow that you can make as complex or as simple as needed for your project, and as the theory

will work in any application, it isn't just confined to use for renders from ZBrush. By using our alpha pass it would be very easy to now add this image to a pre-rendered background, and with a depth pass using the RGBZ grabber in ZBrush we could even produce a depth of field effect. Also remember that there is no reason why you cannot 'touch up' a render layer pass, or even use a mask to have it only effect the area you wish.

I hope this has been of some use to you in your projects and helps you to realise the images you wish for much easier.

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"I wanted to do something grotesque: big nose, big forehead, creepy looking..."

Sergio Santos, in this Making Of, starts off by creating a standard bone structure for a human and then continues by adding muscles, skin and features to create something quite grotesque looking...

Making of The Mirror

MAKING OF THE MIRROR

Created In:

ZBrush, 3D Studio Max and Photoshop

The Mirror

"The Mirror" began when I was doing a face a few days ago, but it didn't turn out the way I wanted it to so I decided to give it a try in a different way. I wanted to do something grotesque: big nose, big forehead, creepy looking… so I took the head that was driving me crazy and I changed it with no direction.

For the base head I used only quads; there is not a single triangle in the whole model, which helps to keep the model clean so you can select edge loops easily and create better UVs. It also gives you better performance (**Fig01**).

For the sculpting I usually use ZBrush. I go back and forward in the different levels of subdivision, changing my brushes constantly. I also change the "focal shift" a lot, which provides an easy way to do sharp shapes of hard edges. I find this technique works very well to get a more defined model (**Fig02**).

I started with the standard bone structure for humans and added the muscles and skin, but kept these ideas of something grotesque, just exaggerating some parts. Then I closed my eyes a little – just enough to see shadows on the model that I could turn into shapes. Some random bulbs around the surface were added, and then suddenly I saw where

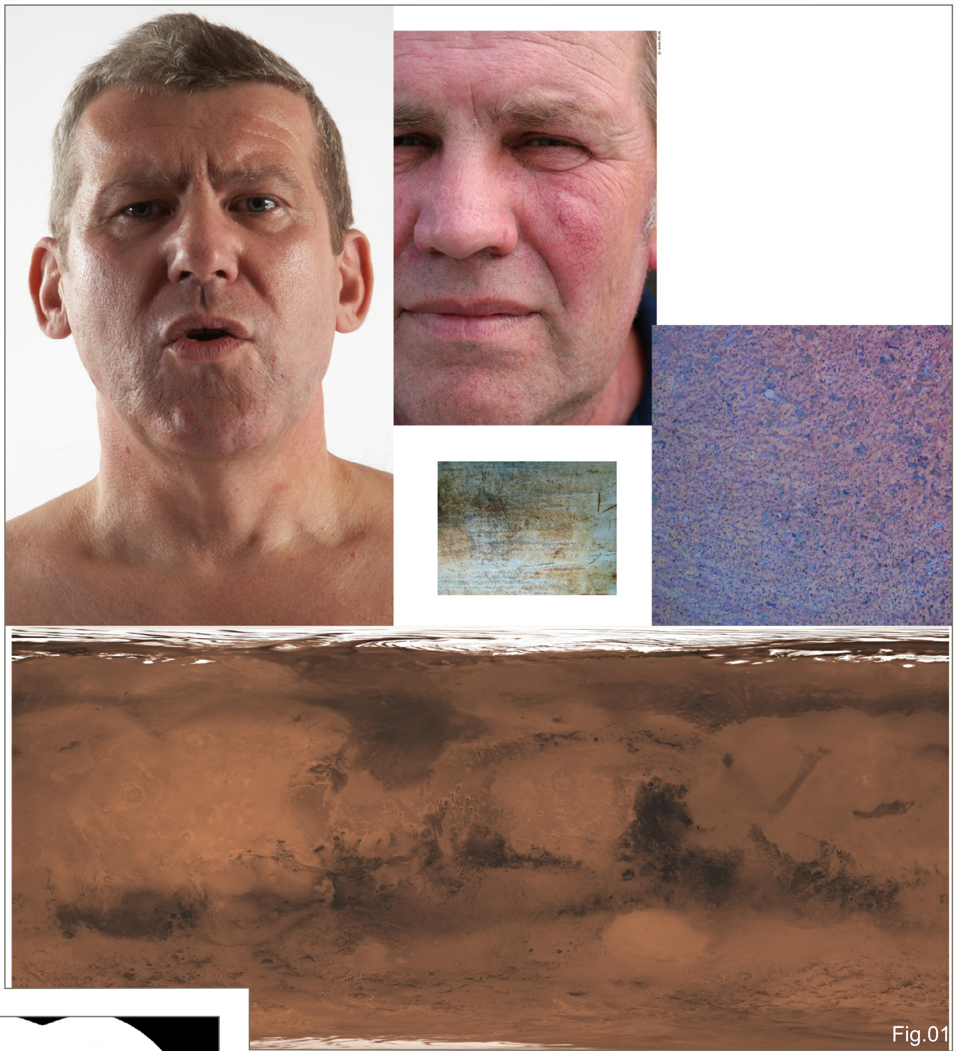

Fig.01

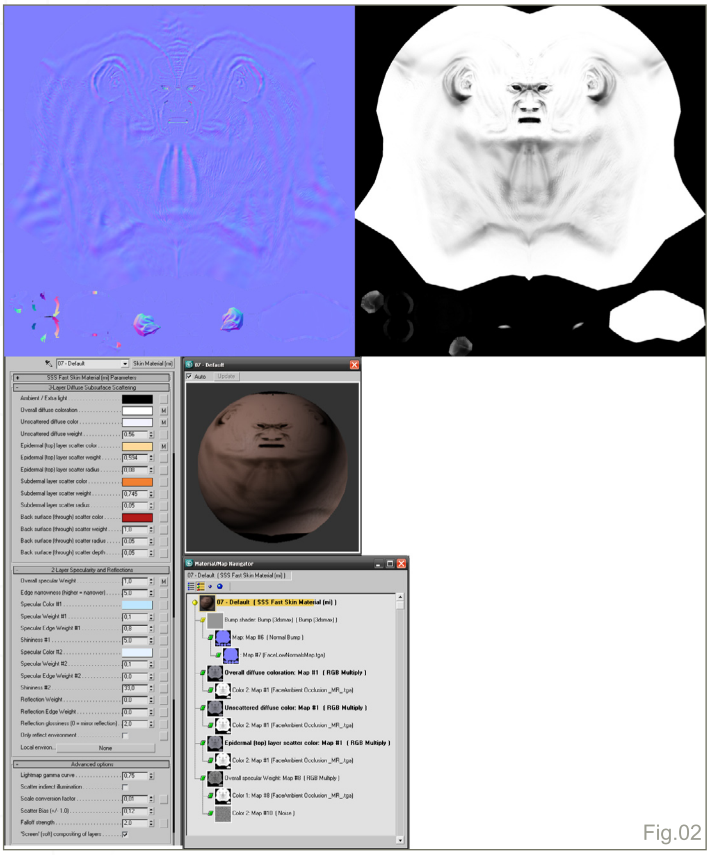

Fig.02

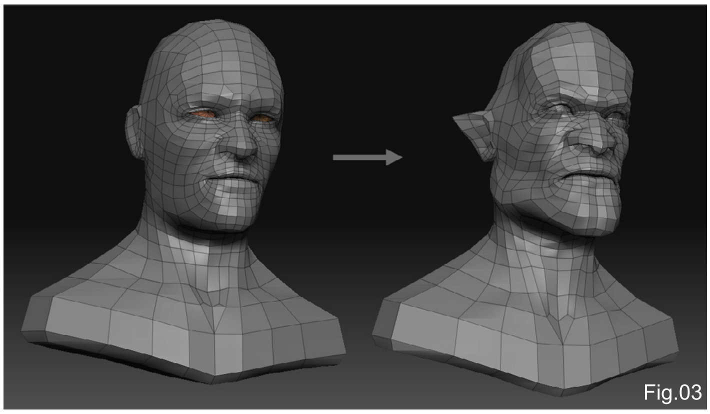

Fig.03

I was going! It was like watching clouds and imagining things like animals, or whatever else you can see, in those shapes. For the more human details I used pictures of real people, some of them from 3d.sk and some others from art and photography books that I've been buying here and there. The latest I bought was a book of portraits by Steve McCurry (**Fig03**).

I added some details with the stencil tool, but not too much – just in a few places, because by that time I had in mind what kind of picture this was going to be and I knew all the details should be in the front of the face (**Fig04**).


Fig.04

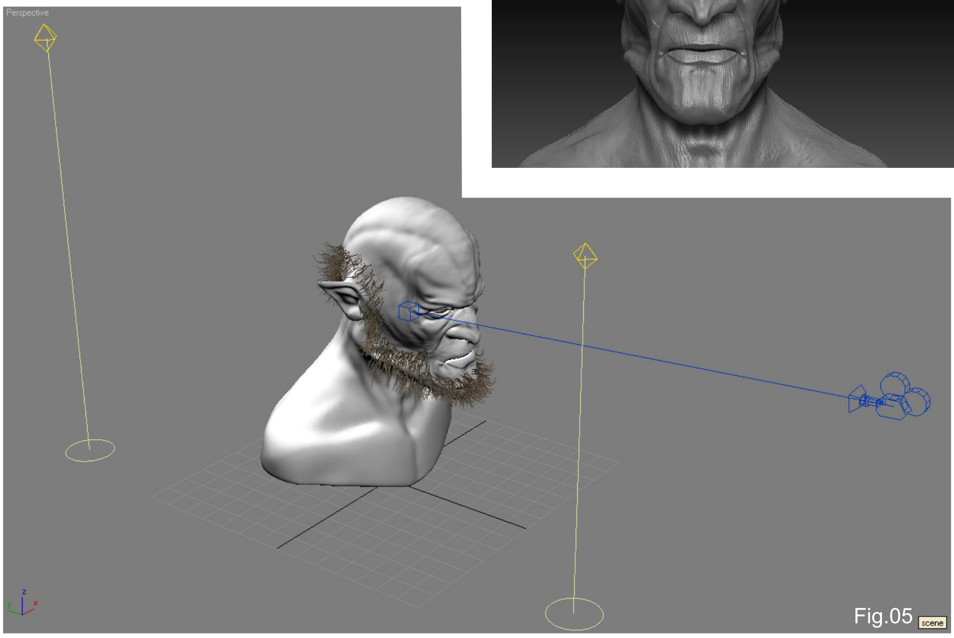

Fig.05

I baked the ambient occlusion and worked on the SSS shader, as well as the lighting. I needed a back light for the contour and the translucency of the big ears, and another light to create the shadows of the nose and eyebrows so it could have this scary look. I was using mental ray for the render, but I didn't use final gather or any other kind of global illumination; with the baked ambient occlusion I had enough and it worked well and saved me resources, so the render could be fast. I find it important to analyse what you are going to need and use only that. Don't waste your computer processing power in something you barely need just because everybody uses it! I always think first about what I need and then try to optimise the process in order to get the most from my computer (**Fig05**).

For the material I combined different colours, not just the normal red and orange SSS. I needed it to look like flesh because it's creepier, but at the same time I was looking for something pale and out of this world, which is why I used blues and greens for the different layers and speculars. I'm never afraid to experiment with odd colours – you never know when you can find something new and interesting! (**Fig06**)


Fig.06

I decided to add the beard, because when you see someone who hasn't shaved it just looks dirtier and scarier than someone with a clean face, so I went for a fuzzy, messy, dirty hair in 3ds Max using the standard hair modifier. After some tweaking I had exactly what I was looking for. Everything was going so well that I just couldn't resist doing a render and having some fun in Photoshop (**Fig07**).

During the "Photoshopping" was when I had this idea for the title; I was thinking of a fairy tale where the main character looks into a mirror


Fig.07


Fig.08


Fig.09

and what he sees is a freaky monster instead of his reflection, like in "The Neverending Story" with Atreyu in front of the second door of the Southern Oracle (**Fig08**).

I did all the post production process and texturing in Photoshop. It took me a few hours of adding dirt and grain and painting some details like veins and a dead eye. I added the bloom and the depth of field by hand, and I enhanced some parts to help achieve the volume of the model (**Fig09**).

I was looking for an illustrative look, so I tried to emulate that the image was printed on paper and receiving light from the top. Finally, I did some Level corrections and I was happy... and exhausted. It took me more than six hours from the sculpting stage to the final image, but I enjoyed the whole process and I hope you enjoy the image, too!

The Mirror

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"I WANTED TO GIVE A KIND OF SAD FEEL TO THE IMAGE, BY HAVING THE BASS GUITAR CONNECTED TO THE AMP, BUT WITH THE SOCKET UNPLUGGED"

making of Unplugged

Luis Ramos has used Maya 8.5 and 3DTotal Textures: Vol.2: R2 DVD, to create this realistic bass guitar scene...

making of Unplugged

CREATED IN:

Maya 8.5

CONCEPT:

For this project I didn't make any sketches, because I already had an idea of what I wanted to make. Since my idea was make a scene with my bass, I simply put the actual bass by my side whilst I was working on its model. Having the real model is very good for making details and taking some measurements. For the amp, I based it on some different amps that I found on Google (**Fig01**).

fig. 01

I wanted to give a kind of sad feel to the image, by having the bass guitar connected to the amp, but with the socket unplugged, and focusing not just on the guitar but also focusing on the socket.

MODELLING:

I modelled the bass guitar in Maya 8.5. As a starting point, I used the "Create Polygon Tool" (Polygon > Mesh > Create Polygon Tool) to make the shape of the body, based on a front photo Image Plane, and then I used the "Split Polygon Tool" (Polygon > Edit Mesh > Split Polygon Tool (make sure that the "Split only from edges" box is unchecked)) to make the edges, so I could convert it into Subdiv. without any errors, in order to "test" the geometry (**Fig02**).

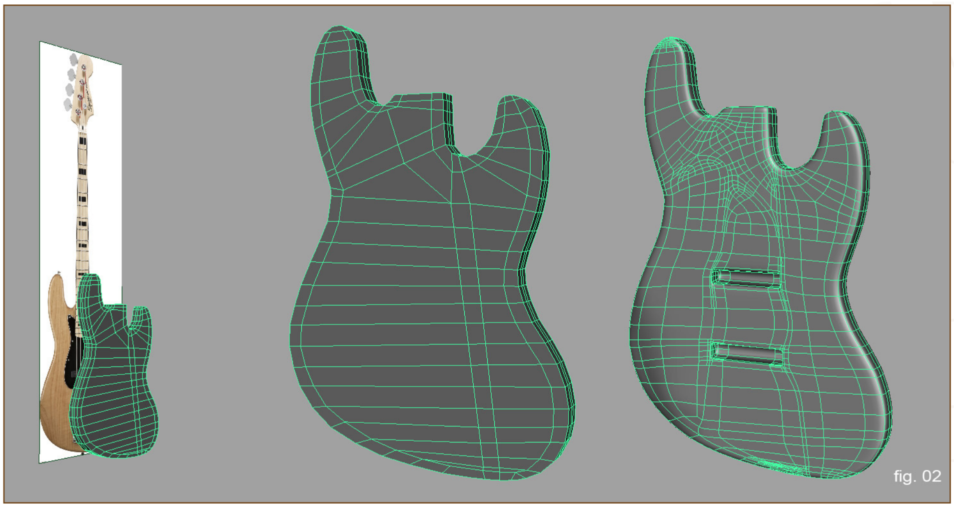


fig. 02

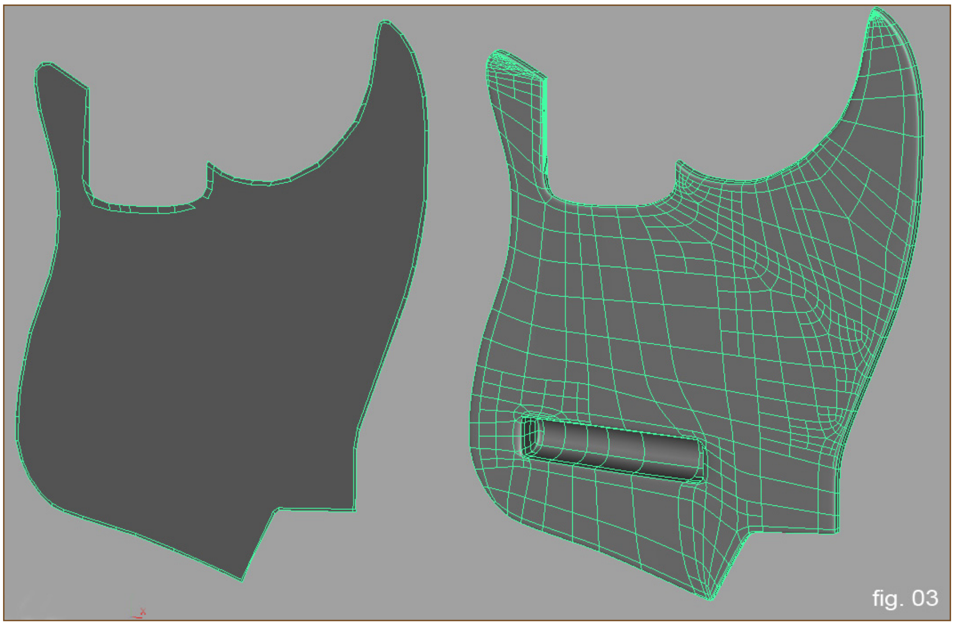


fig. 03

I used the same technique for the pick guard (**Fig03**).

For most of the other objects, I used a poly cube as a start, then I extruded them, added some edge loops using the "MJ Poly Tools 1.3", and moved some vertices (**Fig04**, **Fig05**, **Fig06**, **Fig07**, **Fig08** and **Fig09**).

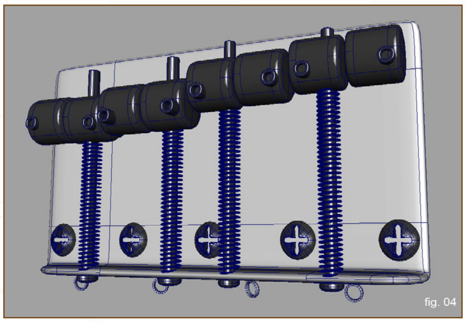


fig. 04

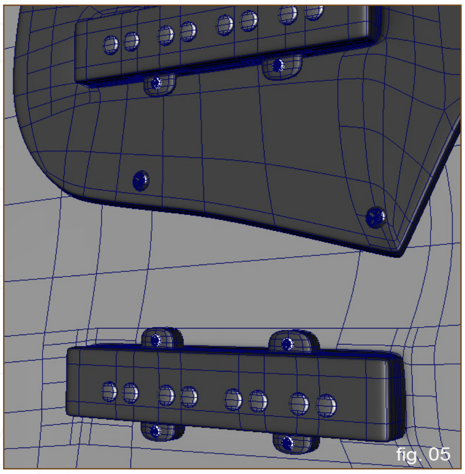


fig. 05

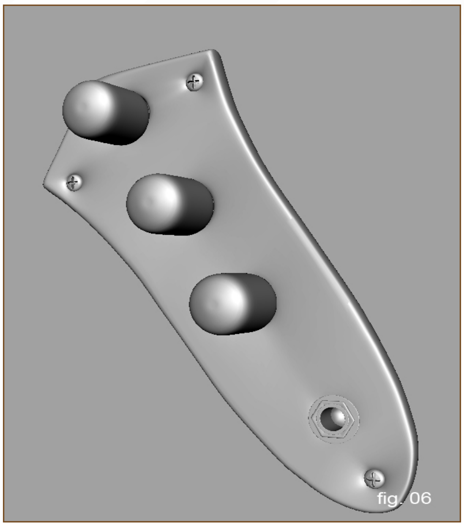


fig. 06

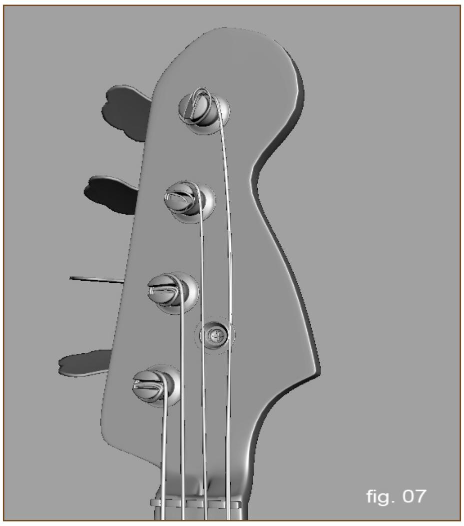


fig. 07

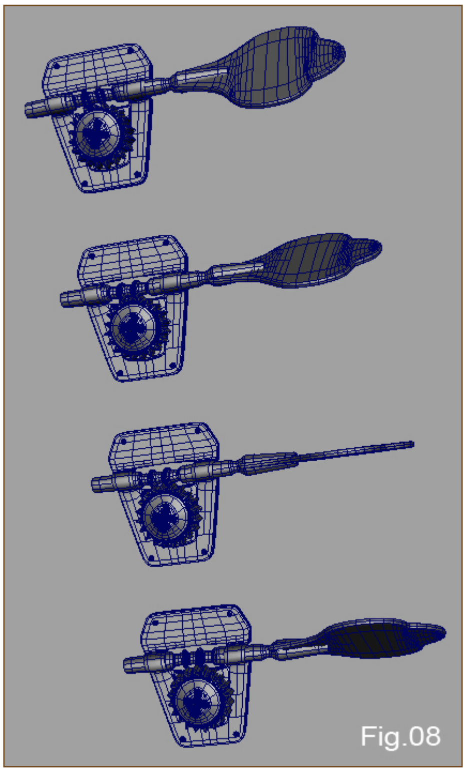


Fig.08

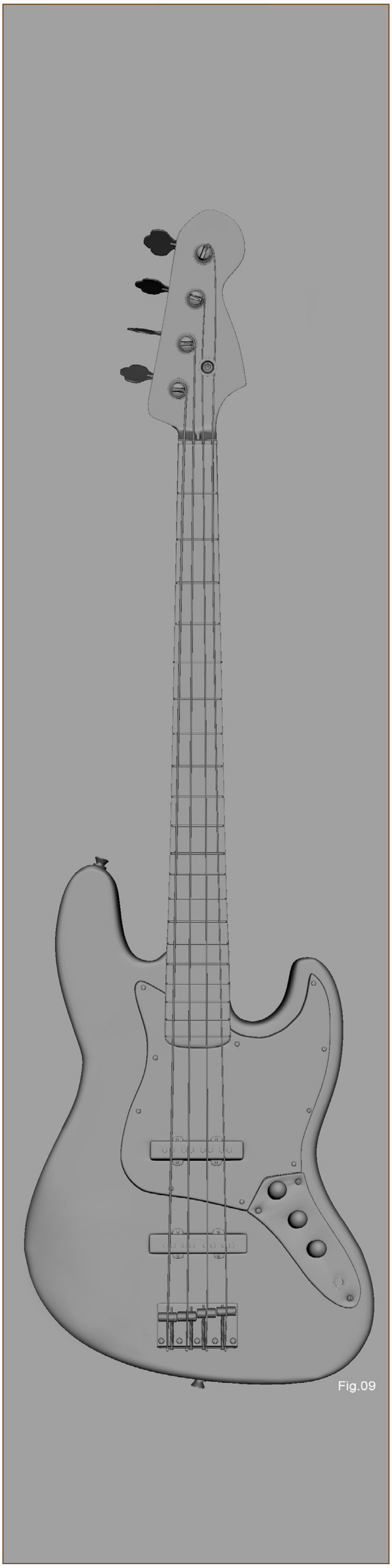


Fig.09

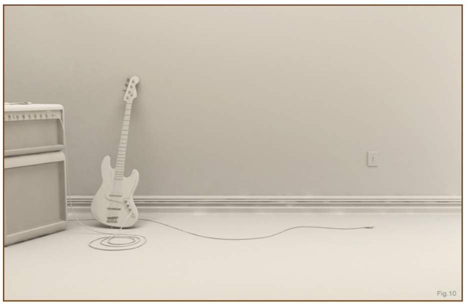
For the rest of the scene I used the same techniques, except for the cables which I made with 3ds Max splines, since it's much faster and easier to make this type of thing. I jumped to Max for the rendering process (the reason why I did this you'll see in the next steps!). (**Fig.10**)

TEXTURING:

For the textures, I mainly used the 3DTotal Textures, except for the woods. I focused the texturing on the wall, because I knew that would be the place that everyone would look.

First, I got some concrete textures from the Total Textures: Vol.2 DVD and started duplicating, erasing, cloning and adjusting the colours until I got a nice, seamless and big (2K) texture. Then I took some dirt maps (Total Textures DVDs: Volumes 1 and 5), colour corrected them using the "Color Balance" tool, changed the colour blend to "Multiply", and played with the opacity (**Fig11**).

For the ground I took a wood texture which I already had, and started adding dirt maps to it (**Fig12** and **Fig13**).



For the guitar, I first made the UVs in UVLayout and Maya, then I jumped into Photoshop to start cloning and erasing, until I had a big and seamless texture. The textures for the guitar were kept very, very simple (**Fig14**).

I had a little difficulty making the details of the neck, so I decided to go to ZBrush, just to have the ability of painting in 3d mode. Using the "Projection Master", I was able to project details onto the texture (**Fig15**).

For some objects I didn't make serious textures, just solid colours with the same dirt maps from 3DTotal Textures. I just edited them, colour-corrected them, and added solid colour layers on top.

LIGHTING & SHADING:

I wanted to make a realistic render; since my machine is quite slow I decided to render with the engine that I'm more comfortable doing realistic stuff with, so I had to jump into Max again.

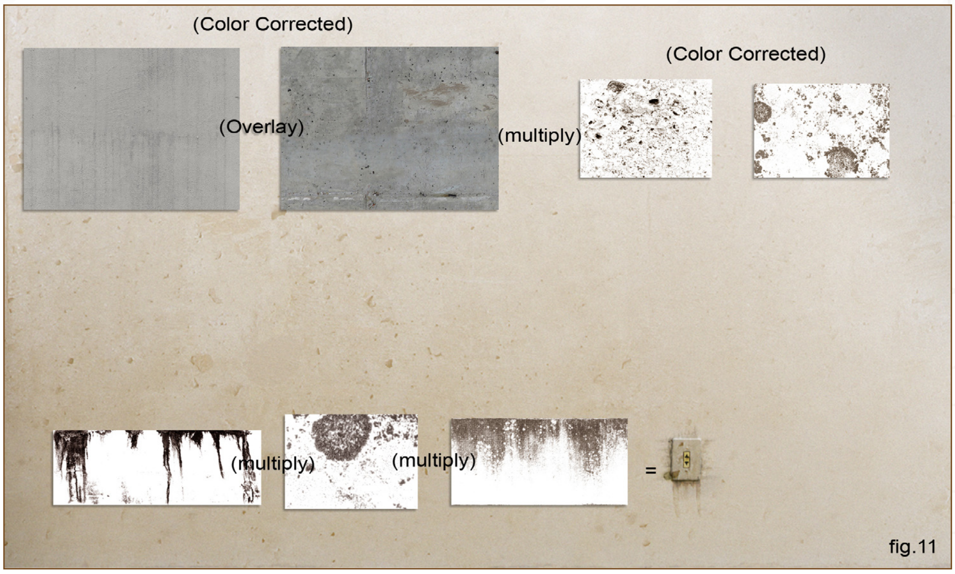


fig.11

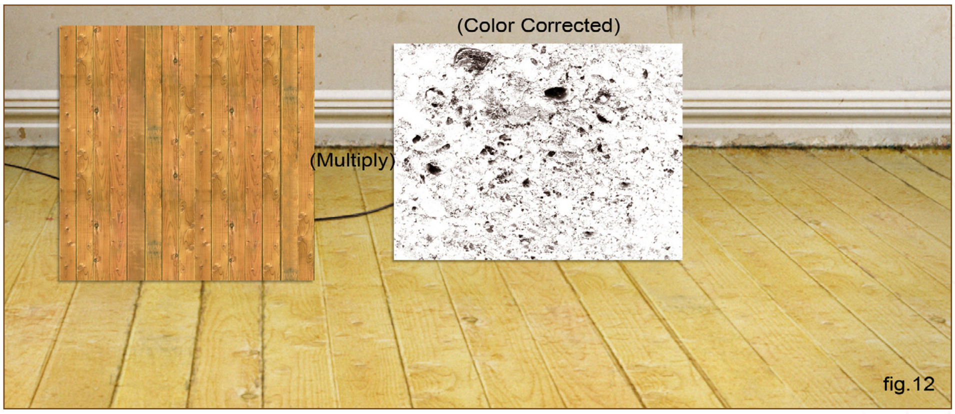
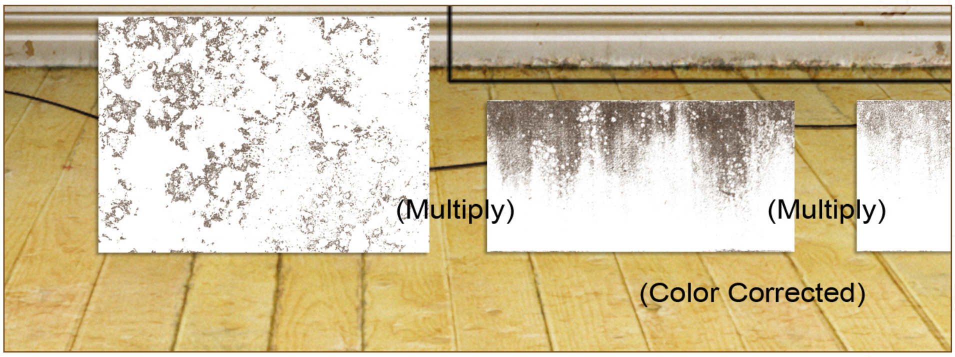


fig.12



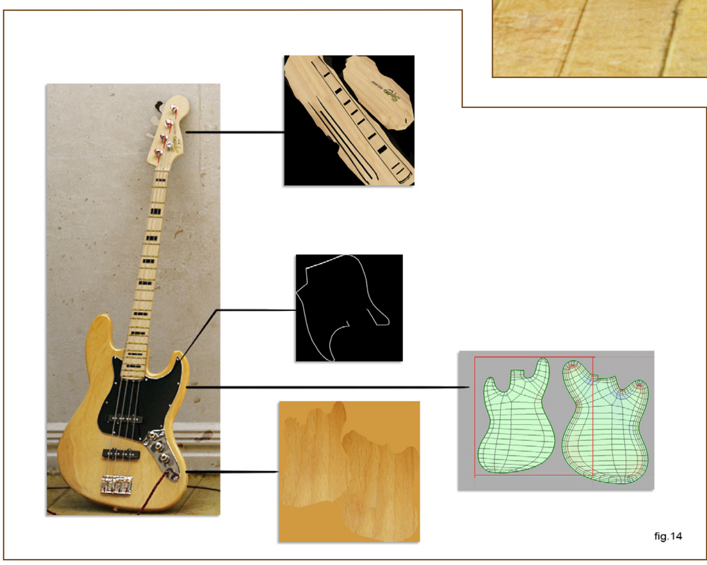


fig.14

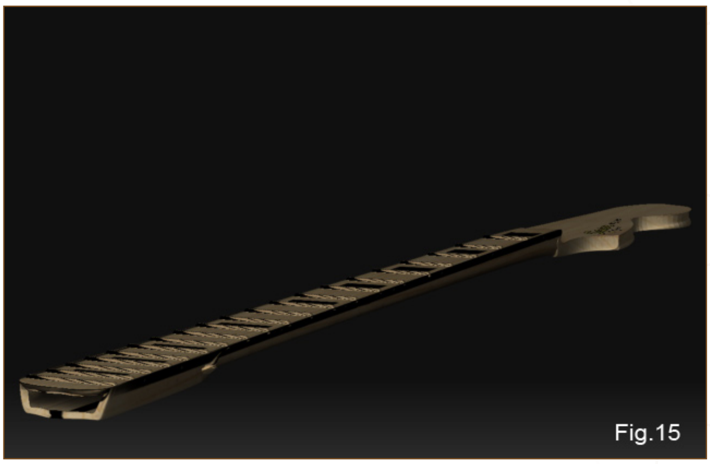


Fig.15

After I imported into Max all of the *.obj files that I exported into Maya, I started setting the lighting up in the scene. I used two Vray lights: one at the top (**1**) and the other at one side (**2**). I also put a plane on the other side to act like a wall and bounce some light (**Fig16**).

This is just a basic lighting rig, because I also used a HDR image to help the lighting and reflection of the scene (**Fig17**).

The material settings were very simple (**Fig18** and **Fig19**).

For the wall and ground materials, they have a little glossy reflection (especially a little on the wall), and the Color maps went in the bump slot, too (**Fig20**).

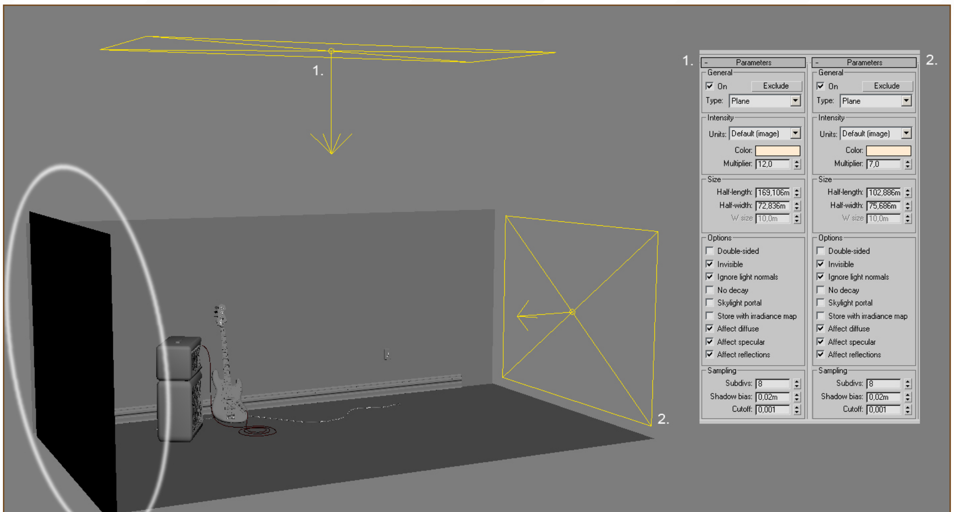


fig.16

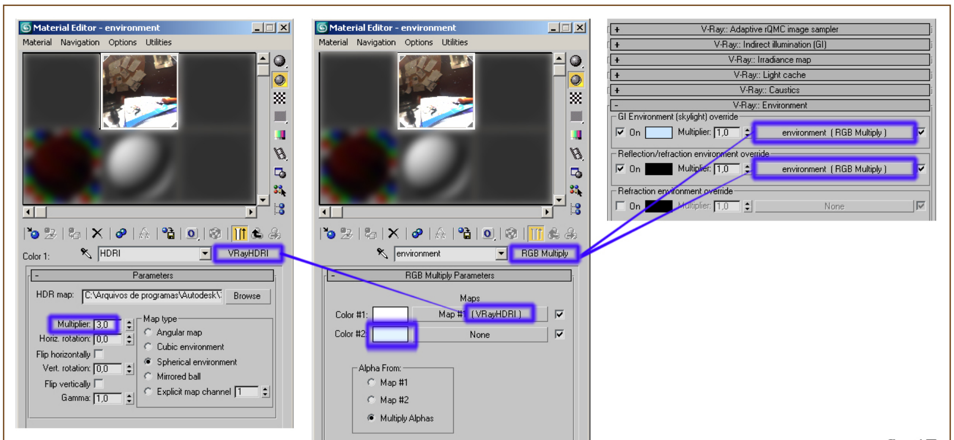


fig.17

RENDERING:

After I applied the materials for all the objects, I made a render of every piece to see if they looked real. At this point I used low quality settings (**Fig21** and **Fig22**).

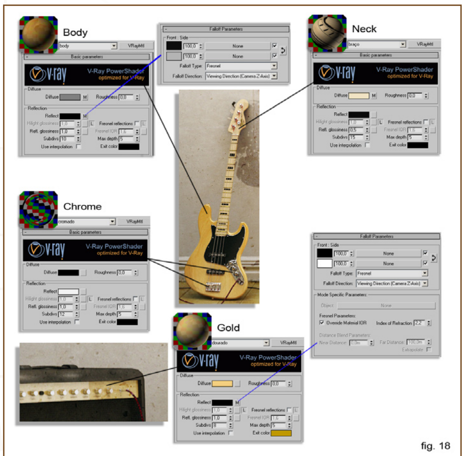


fig. 18

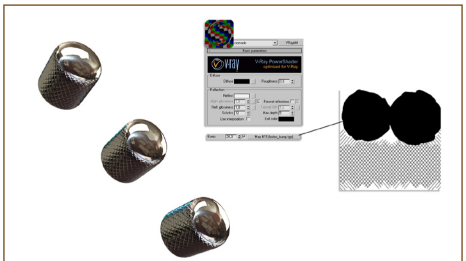


fig.19

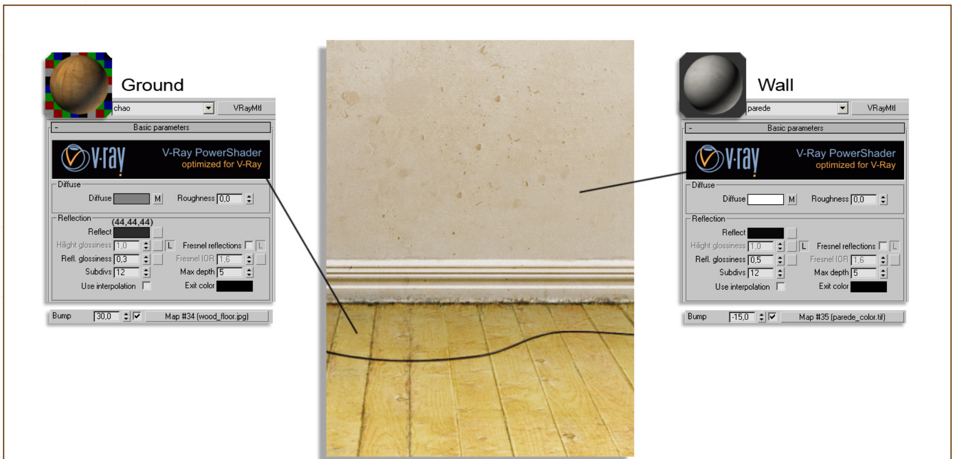


fig. 20

After I rendered the beauty pass, I rendered some extra passes that I could use later on in the compositing stage (**Fig23**).

In order to speed up things and have multiple choices, I always use different renderers in my personal projects. There was no reason for me to use Vray to render the Object ID and zDepth passes, since I could render them using the Scanline renderer, which is much faster for that (**Fig24**).

Default lights: Disable this; we don't need any other light.

Image Sampler: Choose Adaptive QMC, because it's faster than the default.

Antialiasing Filter: Mitchell-Netravali: sharp and good edges.

Min. subdivs: 2 will generate good results.

Irradiance map: Choose Medium and HSph. Subdiv 30; if necessary you can also increase that value to 50 (more than that is rarely necessary).

Light cache: Subdivs 1200, Sample size 0.001, Pre-filter at 1000 will decrease noise but will increase the render time a little; "Use light cache for glossy rays" active will speed up the render a little bit; filter: "None".

Colour mapping: Exponential will avoid "burnouts".

QMC Sampler: Noise threshold 0.005 and Global subdivs mult. 4,0 will reduce the overall noise, increasing the quality.

System: Reducing the render region to 32x32 will save a little RAM (**Fig25**).

Samples: The quality of the overall solution and the bigger the value, the better the result, but with a big cost on render time.

Spread: The diffusion level: smaller values give you tighter results.

Material Override: This will apply the material to all objects in the scene.

Compositing:

I loaded up the beauty pass and the AO pass in Photoshop, then made a copy of the beauty

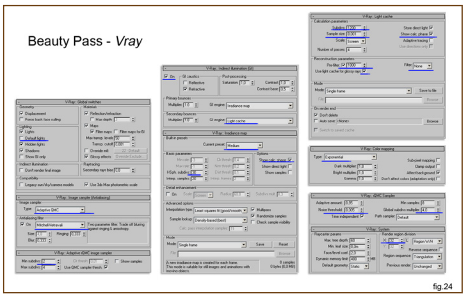


fig.24


fig.21


fig. 22

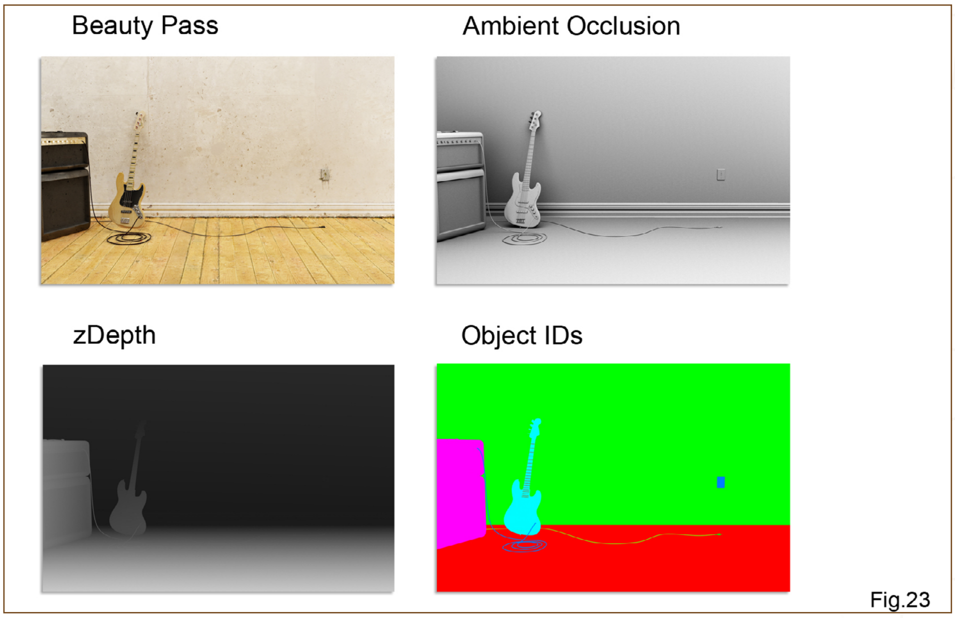


Fig.23

pass and added a Gaussian blur, with a radius of 1, changed the blending mode to "Overlay", and decreased the opacity to 35%. This gave a warm look to the image. Then I adjusted the Levels of the Ambient Occlusion pass, changed the blending mode to "Multiply" and the Opacity to around 35%.

Using the object ID pass and the "Magic Wand Tool", I selected specific areas that I wanted to colour correct and/or adjust levels. To finish the project, I added a slight camera de-focus and noise using the zDepth pass on the "Depth of Field Generator" plugin (**Fig26**).

I hope you have enjoyed this little Making Of. Thanks everyone for reading this and thanks to 3DTotal and 3DCreative for the opportunity!

Ambient Occlusion - *MentalRay*

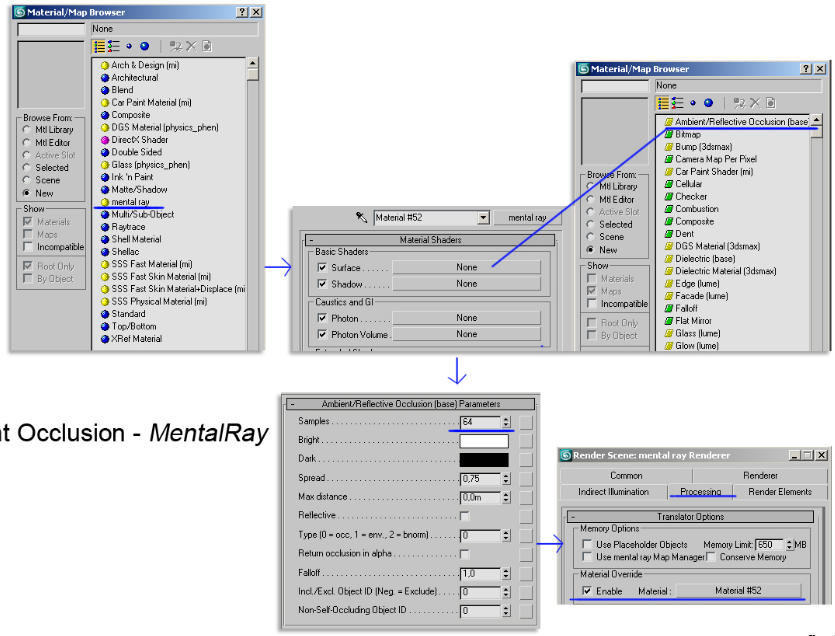


fig.25

Color Correction + Defocus

fig.26

Unplugged

For more from this artist visit:

http://www.lhramos.com

Or contact:

luishrs@gmail.com

"THE IDEA IS THEN BORN ALONG THE PROCESS OF CREATION. IT IS LIKE MEDITATION. "FAR, FAR AWAY" WAS DONE IN THIS EXACT SAME WAY..."

Vladimir Venkov has always have been inspired by the Cosmos, by the possibility that we are not the only ones, and that there is more than just us out there. "Far, Far Away" is a result of this inspiration...

Far, Far Away

Created In:

Mudbox, ZBrush and Softimage XSI

Half of the time when I start something. I don't have an initial concept in my head; I just start modelling, and when the model is ready I create a story based on it, and then an image. The idea is then born along the process of creation. It is like meditation. "Far, Far Away" was done in this exact, same way. I didn't even know what I was going to model when I started! It was just one of my experiments.

I used Mudbox for sculpting. I find this program very intuitive and responsive. I created a cube and started sculpting. My process of modelling is the usual one. First I block the main masses and then go into detail. The finished model was around 2,700,000 polygons. It was subdivided 9 times and I used 20 layers for the different features of the creature. To the right you can see the stages that I went through whilst sculpting (**Fig01**).

Because I liked the result I decided to texture and render it in ZBrush. By that time I was still using ZBrush 2. The idea of the finished


Fig02

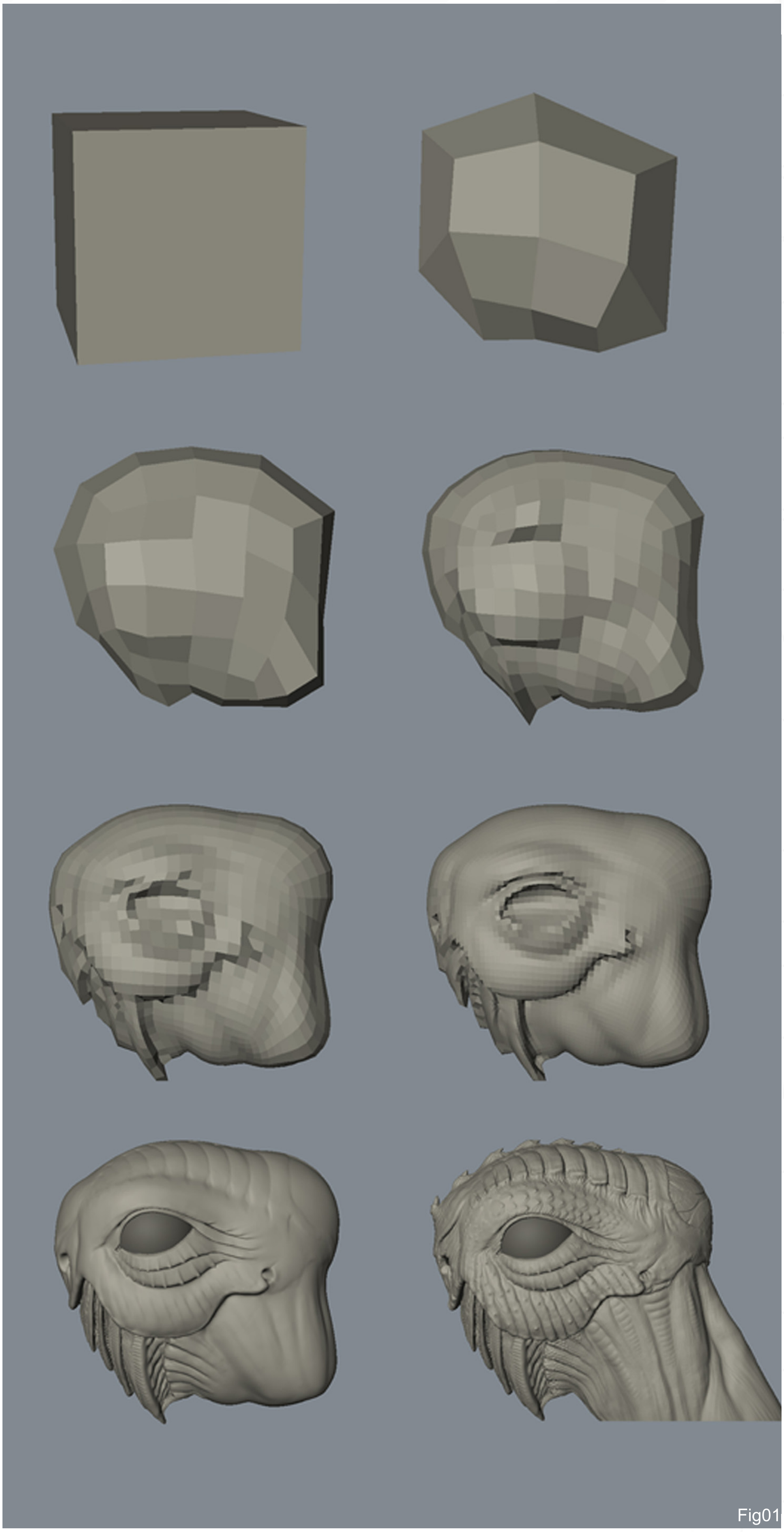


Fig01

image was still quite far away at this point. Once imported into ZBrush, I dropped it on the canvas, converted it to pixels and started playing with the lights and materials. When I was quite satisfied I started painting the textures. Because the object was converted to pixels, I was able to use the 2.5D tools. They are extremely useful and very flexible. All textures, including the eye, were painted by hand. On the previous page there is a screen grab of it (**Fig02**).

After finishing the textures, I got deeper into the lighting and materials. I used 3 different modified versions of the QuadShader: one for the top part of the creature, one for the middle, and one for the lower part. For the eye I used ToyPlastic shader. In order to increase the specularity on some of the parts I painted them

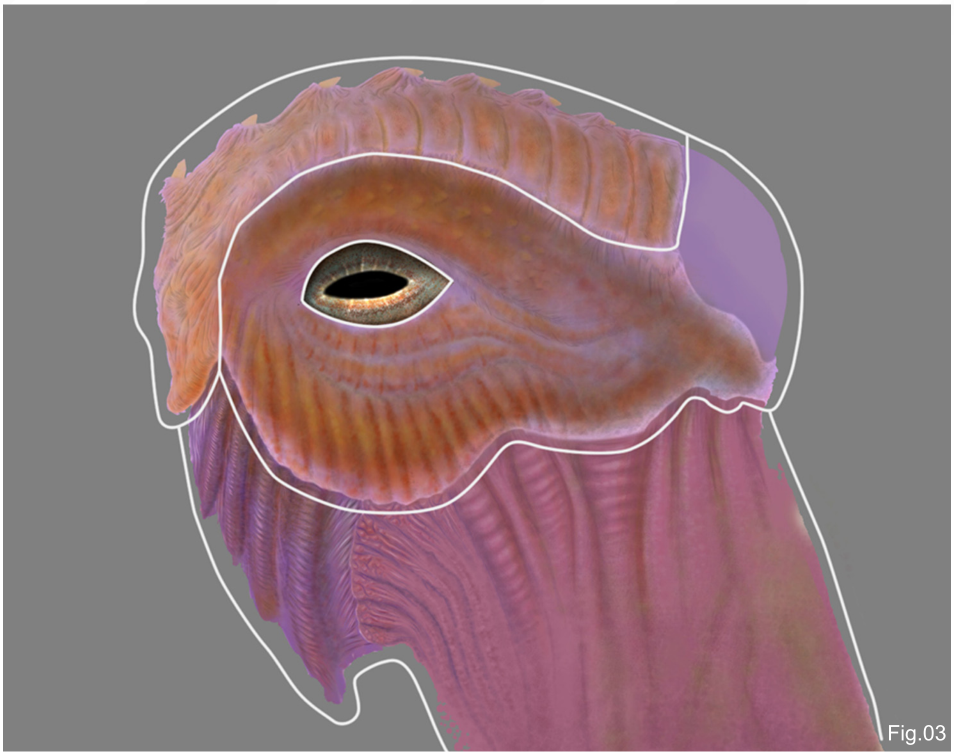


Fig.03

Fig.04

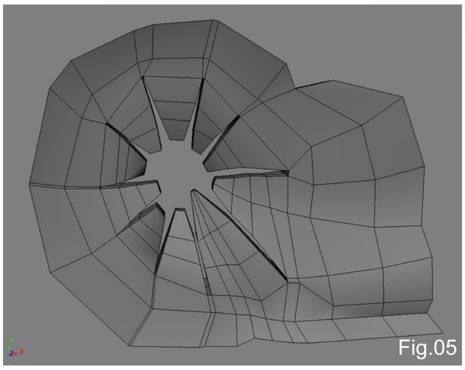


Fig.05

with another modified QuadShader. On the previous page you can see an example of the image with the areas that I painted with different shaders (**Fig03**).

To light it properly I used 5 lights: 3 sun and 2 point. ZBrush is a bit different from the usual 3D software when it comes to rendering, but if lights, materials and render settings are combined properly you can get really solid results (**Fig04**).

After this stage, the idea of a whole scene started to emerge. I tried to imagine the environment that this creature could have lived in. Because it wasn't supposed to be part of a scene, I didn't think about composition and stuff when dropping it on the canvas and rendering it (as you know, in ZBrush, once an object has been dropped it cannot be rotated in 3D). That's why my task was quite difficult. After some thinking, I made a very basic model of a circular composition of rocks. It was done in Softimage XSI (**Fig05**). I then imported it into Mudbox for detailing (**Fig06**).

The polycount was around 1,100,000 polys. I then took it into ZBrush for lighting, texture painting and rendering. I used 8 lights. Again, I used the 2.5D tools to achieve different kinds of effects. In the end, instead of rendering it, I just took a screengrab because I liked it a lot (**Fig07**).

For the background, I really liked an image that I painted for another piece. I thought it would go nicely with the rest of the scene (**Fig08**).

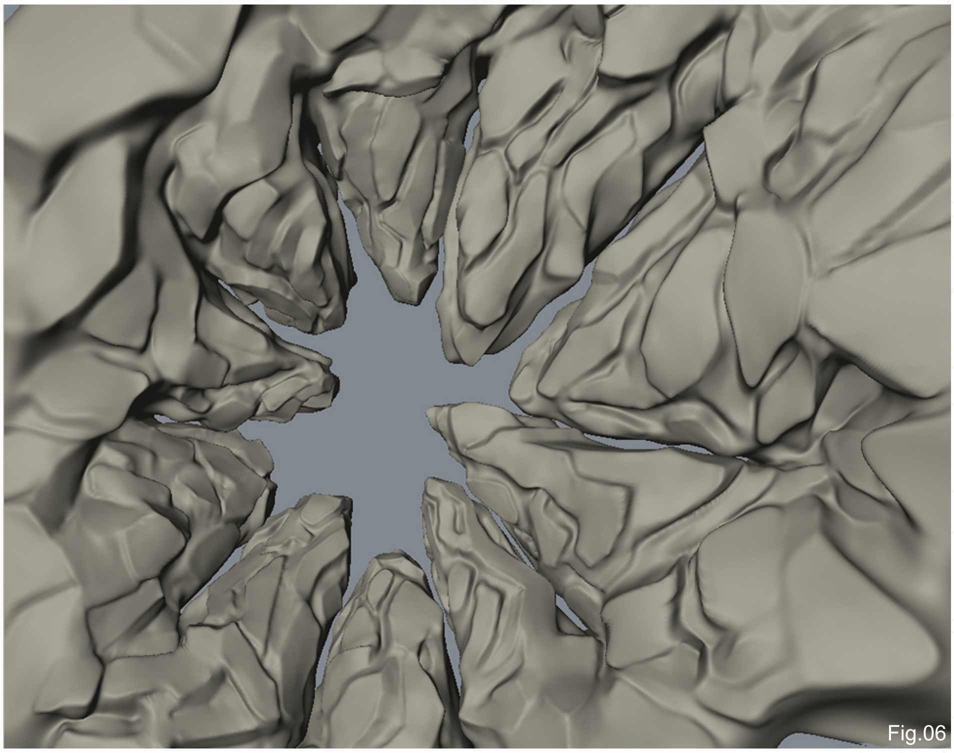


Fig.06


Fig.07

Fig.08

The next thing to do was to take all of the 'stuff' into Photoshop and start playing with it. When I do such compositing, I usually collect lots of dirt textures from the Internet, which helps me to blend the different layers and achieve certain effects. For this particular image, the main task was to combine the creature, rocks and the background in such way so that they blended nicely together. I divided the image into 2 parts: foreground and background. I have always been trying to take into consideration how the eye of the spectator will react. Every image should have a point where the eye can focus and a place where it can relax.

I had to change the initial colours of everything. I also played with the saturation, contrast, blending modes and so on (**Fig09**).

After some tests, I decided to drop the moon. I also had to add some layers for further polishing. They were used to blur or reveal some parts of the image. I had to do some painting as well. The composition stage took me about 2 days to complete. Because I didn't

Fig.09

have any more time, I called it finished, but to be honest a lot more could have been done! (**Fig10**)

Vladimir Venkov

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http://www.vlad74.co.uk

Or contact:

vlad74xsi@yahoo.co.uk

image : Javier Núñez

DIGITAL ART MASTERS
VOLUME 2
With the release of 3DTotal's new book, 'Digital Art Masters: Volume 2', we have some exclusive chapters for you...
The book is more than just an artwork book, as not only does it feature full-colour, full-page images, but each artist has described in detail the creation process behind each published artwork, in their own words, especially for this book!
This month we feature:
'Obsolete'
by Pawel Hynek
DIGITAL ART MASTERS
: VOLUME 2
3dtotal
Focal Press

Obsolete

By Paweł Hynek

Introduction

The idea for this image was born a long time ago, but was in a form which is now very different from the production of my work. At the beginning, it was meant to be humorous and not very complicated in terms of rendering, showing a fairly broken robot collecting change on an unpleasant street corner. The way I originally meant to show my character and his environment was not realistic, because my idea was to add humor to the image and give it a funny look. I considered creating my hero in the style of one of the movie characters from the film *Robots*. At the same time I also decided to show my robot as a war veteran, using the appropriate textures with military ranks and additional objects.

When I had made some initial sketches and had planned the entire scene in my head, I felt that my work seemed to have become less funny, and much more serious. The robot became a self-aware machine, trying to preserve his existence in the world at all costs. Now, can that be a funny scenario? What is the difference between "him", the robot, and a human being: a real soldier harmed by war and left to fend for himself?

I also remembered many books and movies that in one way or another touched upon the problem of the relationship between humans and artificial forms of intelligence created by mankind. From *I, Robot*, through Robert Sheckley's short stories, to the recent *Battlestar Galactica* series, they all raise many similar questions. I knew that I had to change my project's basis and give it a more realistic look. I decided to give up the cartoon character and environment, and began work on a more realistic-looking scene, which had to reflect an essence of my thinking and encourage spectators to contemplate the message.

I didn't make any additional sketches, and went on to keep the original composition I had sketched out, and I used an old model of a battle droid which I had built quite some time ago. I must add at this point that, in despite of creating an image that contains some kind of message, I was also aiming to display my current abilities in creating high resolution imagery with a lot of mesh details and advanced materials. In my recent works I have always allowed less important elements to remain uncompleted, so with this image I decided to change my working style and really show what I can achieve.

Modeling

This stage was rather simple. The robot was rebuilt from an old mesh using polymodeling. For example, I started out with a single box as a base, and a cylinder for the arm hole. I then joined them together and made extrudes, cuts and vertex manipulations to achieve the basic block. Then I subdivided it and made panel holes (Fig.01). After I had finished the whole body, I made additional parts, like eyes, cables and skeleton parts (Fig.02). The tricycle was modeled in a slightly different way. Only a few parts were box and cylinder modeled, and most of the geometry was created using renderable splines. The hardest thing to do was the chain. It's hardly even visible on image, but I couldn't refrain from creating it properly. As you can see in Fig.03, the geometry wasn't too complicated, and some details were added later on by displacement mapping.

Fig.01 Fig.02 Fig.03

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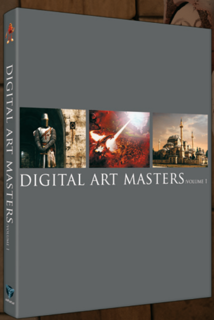
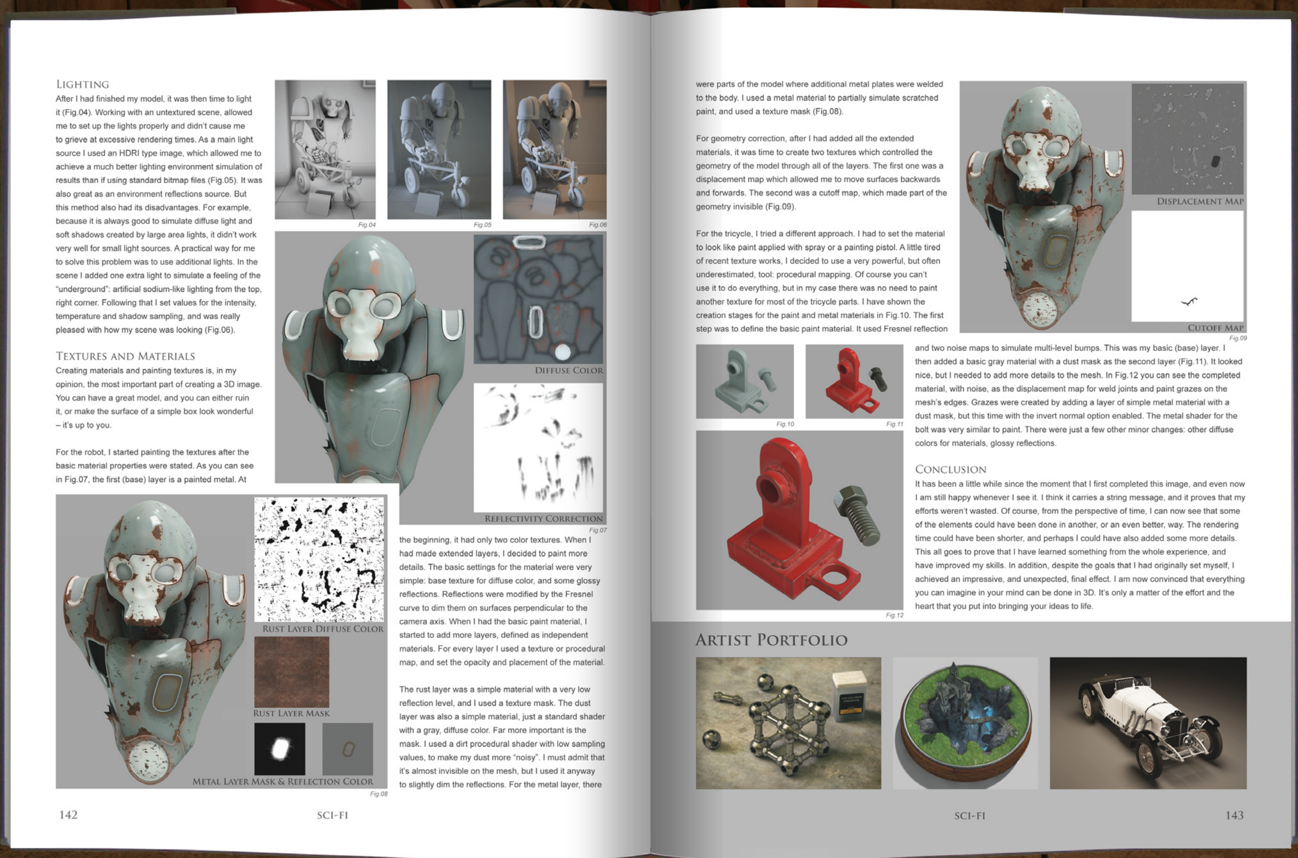
SCI-FI 141





Lighting

After I had finished my model, it was then time to light it (Fig.04). Working with an untextured scene, allowed me to set up the lights properly and didn't cause me to grieve at excessive rendering times. As a main light source I used an HDRI type image, which allowed me to achieve a much better lighting environment simulation of results than if using standard bitmap files (Fig.05). It was also great as an environment reflections source. But this method also had its disadvantages. For example, because it is always good to simulate diffuse light and soft shadows created by large area lights, it didn't work very well for small light sources. A practical way for me to solve this problem was to use additional lights. In the scene I added one extra light to simulate a feeling of the "underground": artificial sodium-like lighting from the top, right corner. Following that I set values for the intensity, temperature and shadow sampling, and was really pleased with how my scene was looking (Fig.06).

Textures and Materials

Creating materials and painting textures is, in my opinion, the most important part of creating a 3D image. You can have a great model, and you can either ruin it, or make the surface of a simple box look wonderful – it's up to you.

For the robot, I started painting the textures after the basic material properties were stated. As you can see in Fig.07, the first (base) layer is a painted metal. At the beginning, it had only two color textures. When I had made extended layers, I decided to paint more details. The basic settings for the material were very simple: base texture for diffuse color, and some glossy reflections. Reflections were modified by the Fresnel curve to dim them on surfaces perpendicular to the camera axis. When I had the basic paint material, I started to add more layers, defined as independent materials. For every layer I used a texture or procedural map, and set the opacity and placement of the material.

The rust layer was a simple material with a very low reflection level, and I used a texture mask. The dust layer was also a simple material, just a standard shader with a gray, diffuse color. Far more important is the mask. I used a dirt procedural shader with low sampling values, to make my dust more "noisy". I must admit that it's almost invisible on the mesh, but I used it anyway to slightly dim the reflections. For the metal layer, there were parts of the model where additional metal plates were welded to the body. I used a metal material to partially simulate scratched paint, and used a texture mask (Fig.08).

Fig.04 Fig.05 Fig.06

Diffuse Color
Reflectivity Correction
Fig.07

Rust Layer Diffuse Color
Rust Layer Mask
Metal Layer Mask & Reflection Color
Fig.08

For geometry correction, after I had added all the extended materials, it was time to create two textures which controlled the geometry of the model through all of the layers. The first one was a displacement map which allowed me to move surfaces backwards and forwards. The second was a cutoff map, which made part of the geometry invisible (Fig.09).

For the tricycle, I tried a different approach. I had to set the material to look like paint applied with spray or a painting pistol. A little tired of recent texture works, I decided to use a very powerful, but often underestimated, tool: procedural mapping. Of course you can't use it to do everything, but in my case there was no need to paint another texture for most of the tricycle parts. I have shown the creation stages for the paint and metal materials in Fig.10. The first step was to define the basic paint material. It used Fresnel reflection and two noise maps to simulate multi-level bumps. This was my basic (base) layer. I then added a basic gray material with a dust mask as the second layer (Fig.11). It looked nice, but I needed to add more details to the mesh. In Fig.12 you can see the completed material, with noise, as the displacement map for weld joints and paint grazes on the mesh's edges. Grazes were created by adding a layer of simple metal material with a dust mask, but this time with the invert normal option enabled. The metal shader for the bolt was very similar to paint. There were just a few other minor changes: other diffuse colors for materials, glossy reflections.

Displacement Map
Cutoff Map
Fig.09

Fig.10 Fig.11 Fig.12

Conclusion

It has been a little while since the moment that I first completed this image, and even now I am still happy whenever I see it. I think it carries a string message, and it proves that my efforts weren't wasted. Of course, from the perspective of time, I can now see that some of the elements could have been done in another, or an even better, way. The rendering time could have been shorter, and perhaps I could have also added some more details. This all goes to prove that I have learned something from the whole experience, and have improved my skills. In addition, despite the goals that I had originally set myself, I achieved an impressive, and unexpected, final effect. I am now convinced that everything you can imagine in your mind can be done in 3D. It's only a matter of the effort and the heart that you put into bringing your ideas to life.

Artist Portfolio

142 SCI-FI

SCI-FI 143

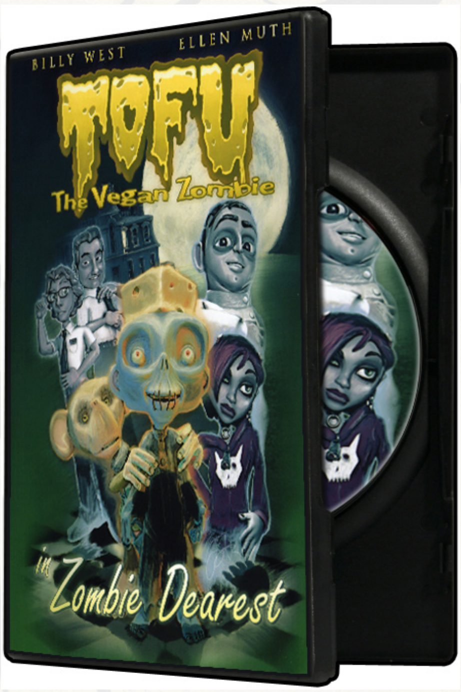
The Vegan Zombie TOFU

WINNERS!

Here are the lucky winners of last months competition to win a of Zombie Dearest + each DVD comes with a signed illustration!!!

Last month we ran a competition for a chance to win one of these amazing DVD's plus a one off signed illustration. Here are the lucky winners of this competition:

James Leaburn, Corey DePaul, Francisco Andujar Sanchez, Gregory Gomez, Husam Ibrahim Elbashir & Tim Laird. Congratulations to you all and your DVD's and Signed pics are on your way to you.



Tofu the Vegan Zombie: Zombie Dearest is the latest DVD from the mind of William Vaughan. Things just keep on going wrong in Zombie Dearest, the first adventure of Tofu the Vegan Zombie.

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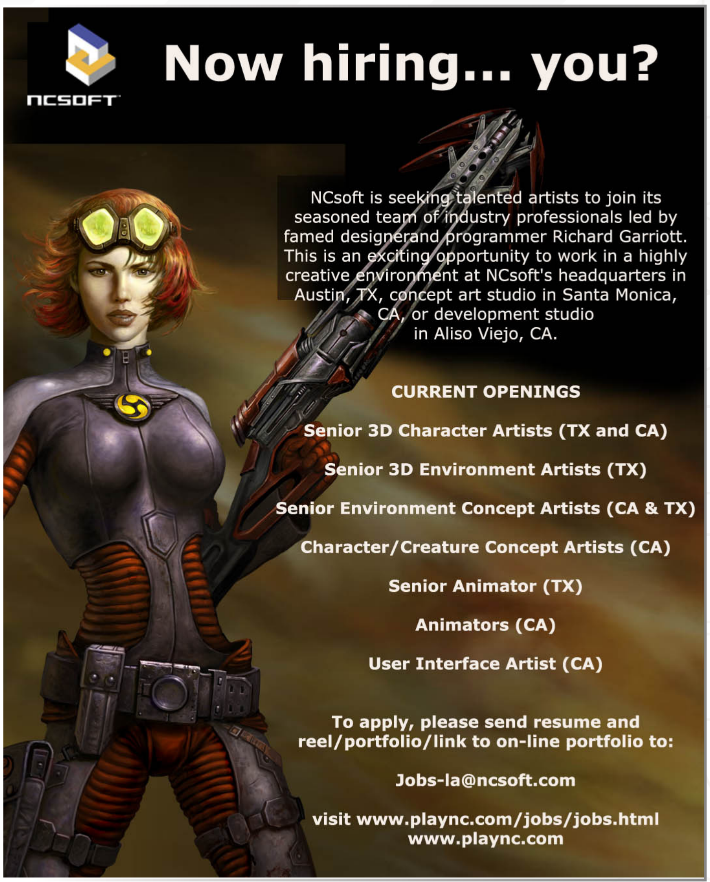
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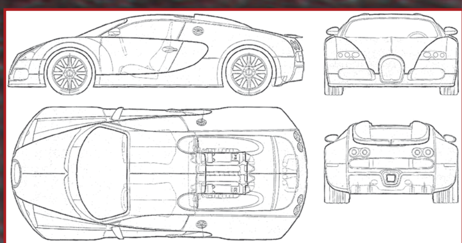

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Modelling the Chassis Part 1 - Basics

Hello and welcome to the first part of this seven-part car modelling tutorial series. In this part, we will cover using the blueprints and reference images, and modelling the basic body work.

Blueprints are very essential when modelling a car, as they will make the process easier and will ensure that the overall proportions of the model are correct (please visit www.the-blueprints.com for blueprints). I've had a few experiences where I had to model a car without blueprints, and although I enjoyed the artistic process of simply looking at the references and modelling it accordingly, and trying to camera match the image to check that it was correct overall, it's so much faster and more accurate to start with blueprints, but they're not always that easy to find (you can always make your own, though). Here are a few paths that I take, personally, when looking for blueprints. First of all I check the forums at www.smcars.net and see if the blueprint I am looking for is there. If not, I go to the manufacturer's website and check it carefully, as sometimes the blueprints are in the brochure which you can download, or order a hard copy if you have enough time. I also try to use Google's search engine to look for them, but sometimes they're simply impossible to find. Fortunately, we can find lots of blueprints for this Bugatti. It's very easy to find images for the Veyron as it's a popular car!

1. Now for setting the blueprints inside 3ds Max, there are many ways to do it, but here is how I've been doing it for a while now.

First of all, create a plane and have its length and width the same as in the blueprint image. You can check the blueprint dimensions in any windows folder details, or in the Photoshop image size function. Open the material editor and have the blueprint in the diffuse slot and make sure that self illumination is on (**Fig01**).

Fig 01

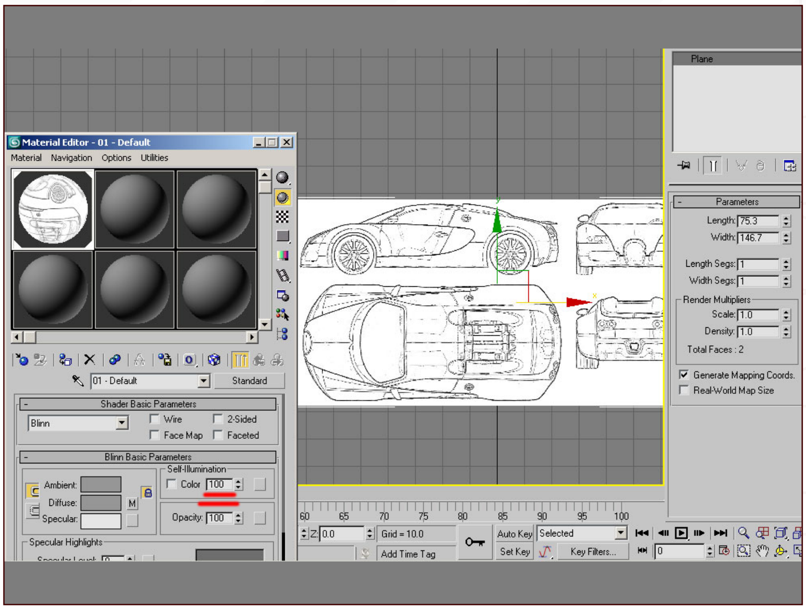


Fig 02

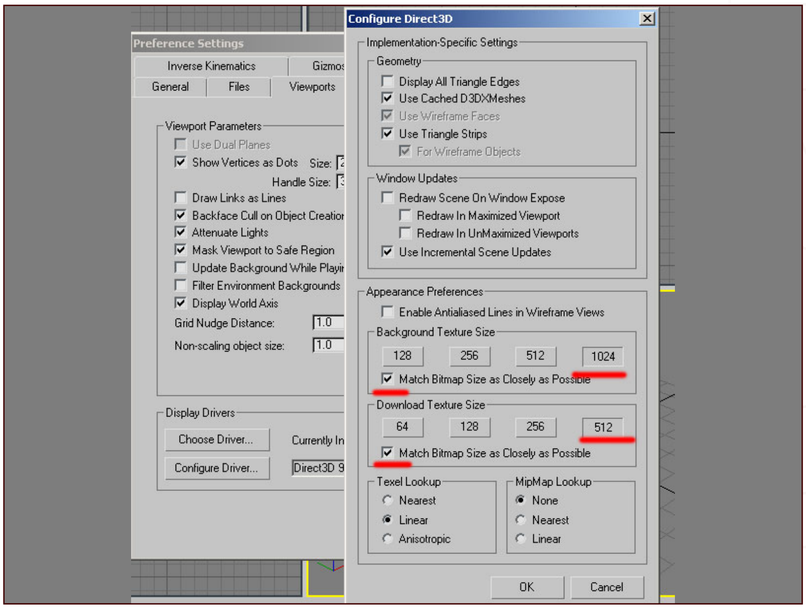
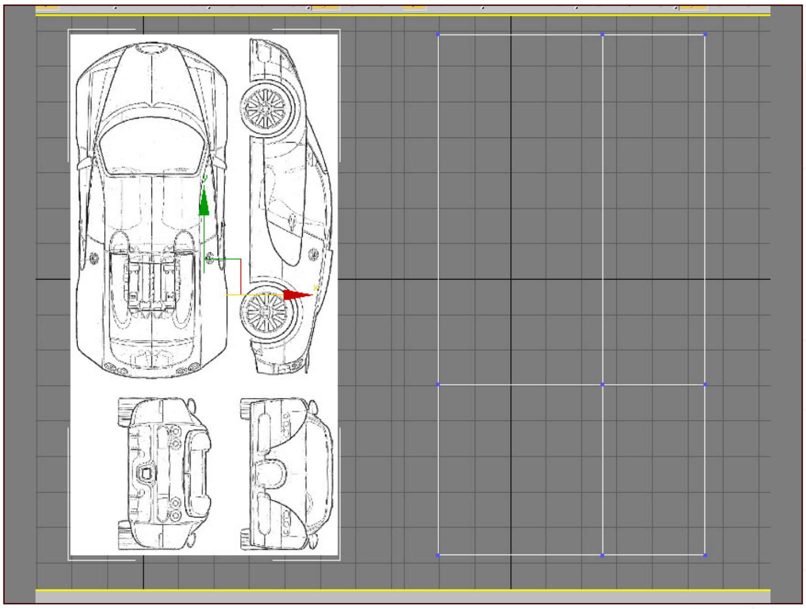


Fig 03



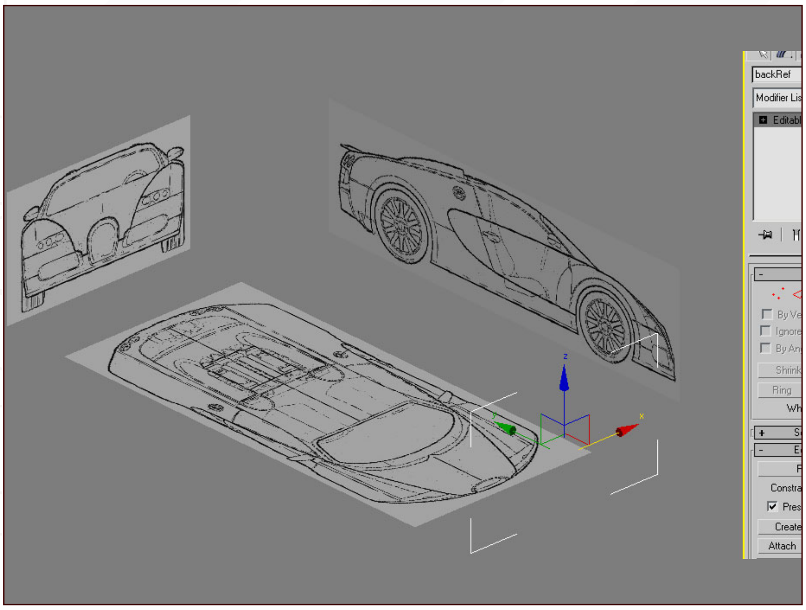


Fig 04

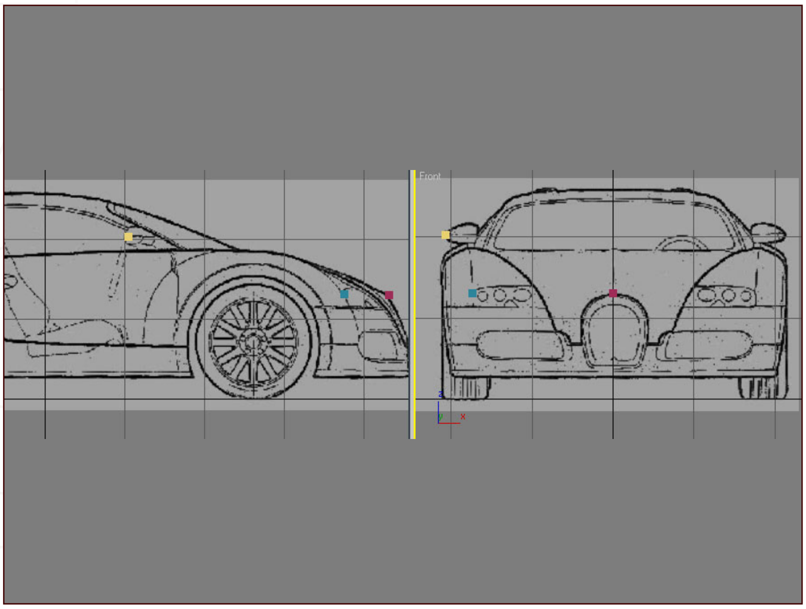


Fig 05

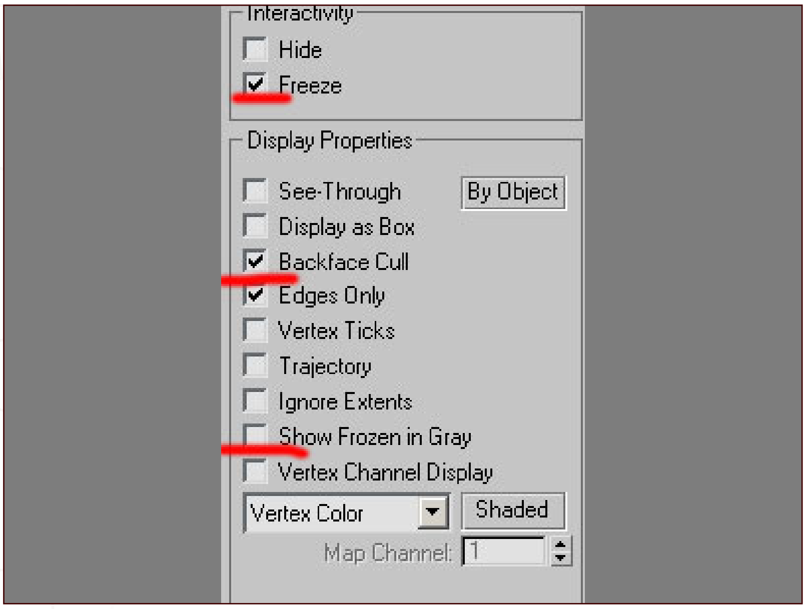


Fig 06

2. By the way, don't forget to make sure that you can display textures at their highest resolutions inside 3ds Max's real-time view port. Go to Customize > Preferences and choose Viewports > Configure Driver and check that it's on the highest resolution, as can be seen in **Fig02**.

3. Now we have one plane containing all views of the blueprints. Instead of splitting them in Photoshop, I find it quicker to do it inside the 3D application that I am using. Simply convert the plane to editable poly and cut it using quick slice, cut or connect edges (**Fig03**).

4. Have every polygon detached to a different object, then rotate them and place them in the right positions. When rotating and moving the blueprint objects, you should take advantage of having the top and side views already aligned for you, by rotating the side view blueprint, for example in the Y axis, and not moving it in a way that will change its alignment. By the way, also make sure that the blueprint objects have Backface Cull selected in the object properties (**Fig04**).

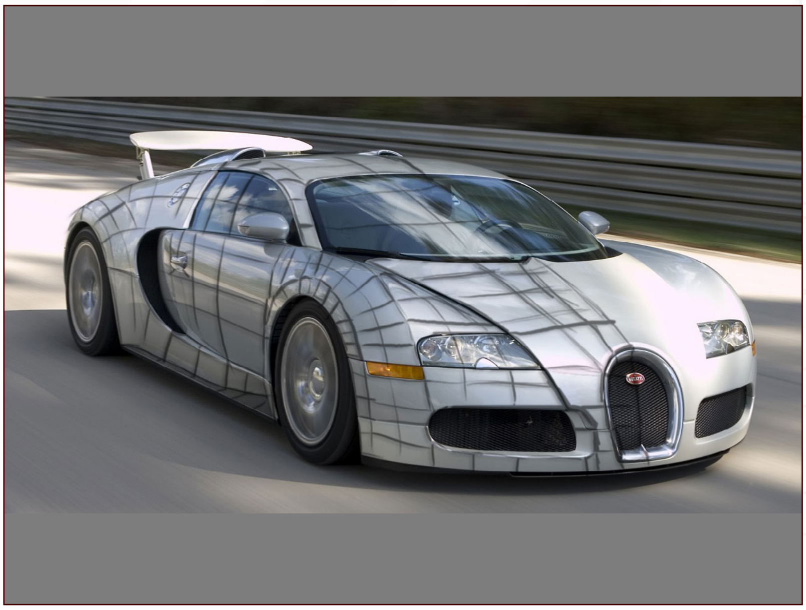
5. After you have all the blueprints you can check if they are placed correctly by placing temporary reference objects in unique places on the blueprints, or by moving the blueprints interactively and having them intersect and seeing if all the lines match as they should (**Fig05**).

6. Now, after you have all the blueprints set in the way you want, disable Show Frozen in Gray, in the object properties, and freeze them (**Fig06**).

7. Before we start modelling straight away, I would like to share a method I've been using for a while now. I usually draw a quick and simple wireframe on an image with a camera angle that shows a good view of the car. I don't follow this wireframe precisely, but it helps me to better understand the form and plan what I will do before I start building all the edge loops.

Drawing a wireframe doesn't mean just quickly putting arbitrary lines on the picture, you have to think carefully how the edge loops will behave and keep it simple so that you can read it easily (**Fig07**).

Fig 07



8. After you have this image, just keep looking at it and at the reference images, then finally start modelling with the blueprints, keeping the wireframe that you are aiming for in mind.

When modelling cars, a lot of time I use spline modelling. Since I have the wireframe planned it appears easier to use spline modelling, but it's exactly the same as starting with a polygon and extruding the edges, so I am just going to do that so that it becomes less confusing, in case anyone isn't familiar with spline modelling.

Simply create a plane and place it anywhere, then start modelling to get into the wireframe you have planned. Since you have blueprints already setup, and you know what wireframe you are aiming for, just have the first polygon match the blueprints then extrude the edges quickly (pick any edge and hold Shift whilst using the Move tool). Have any new edge you make follow the blueprints and planned wire frame (**Fig08**, **Fig09**, **Fig10** and **Fig11**).

Fig 08

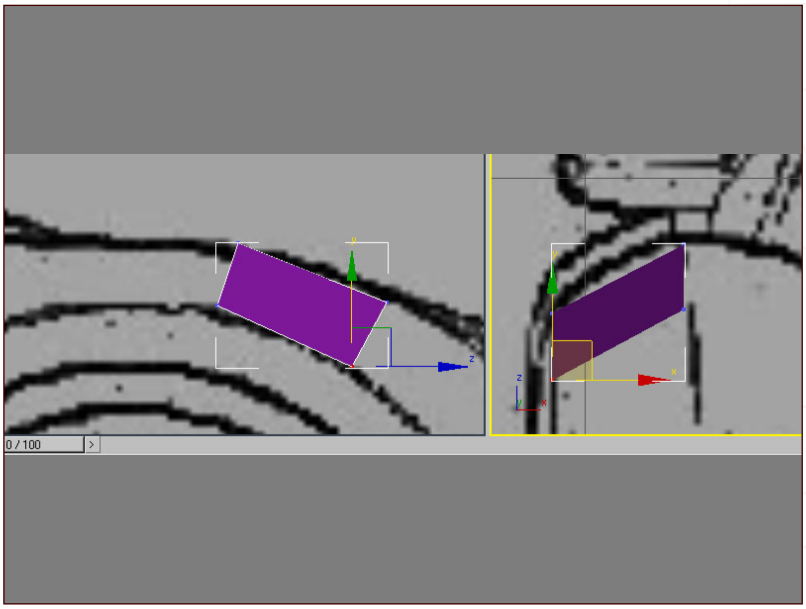
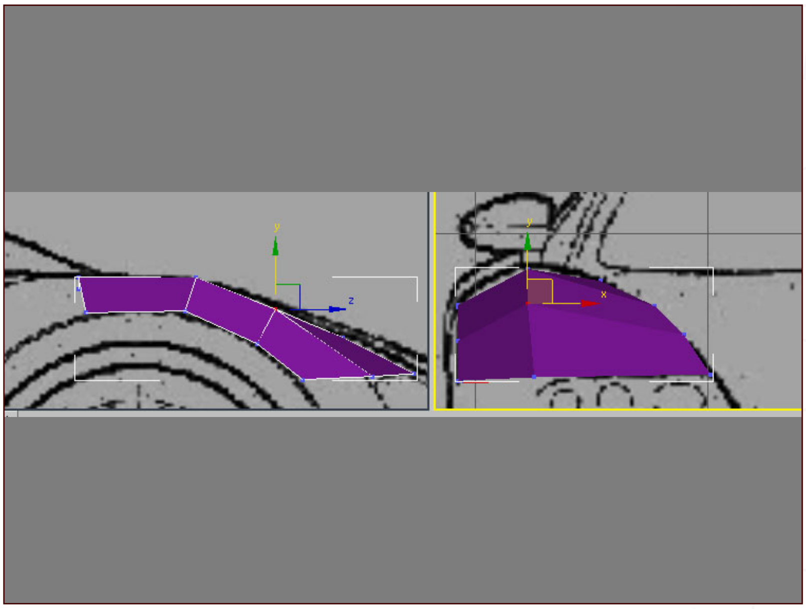


Fig 09



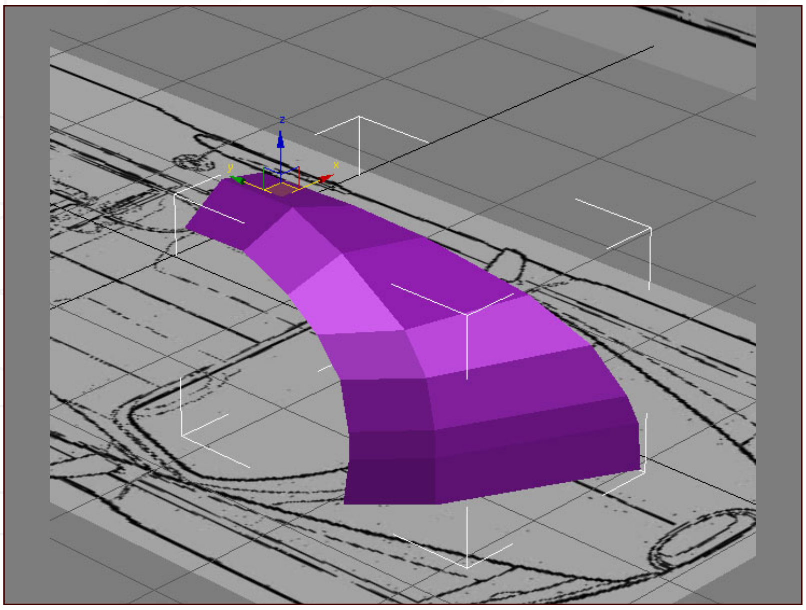


Fig 10

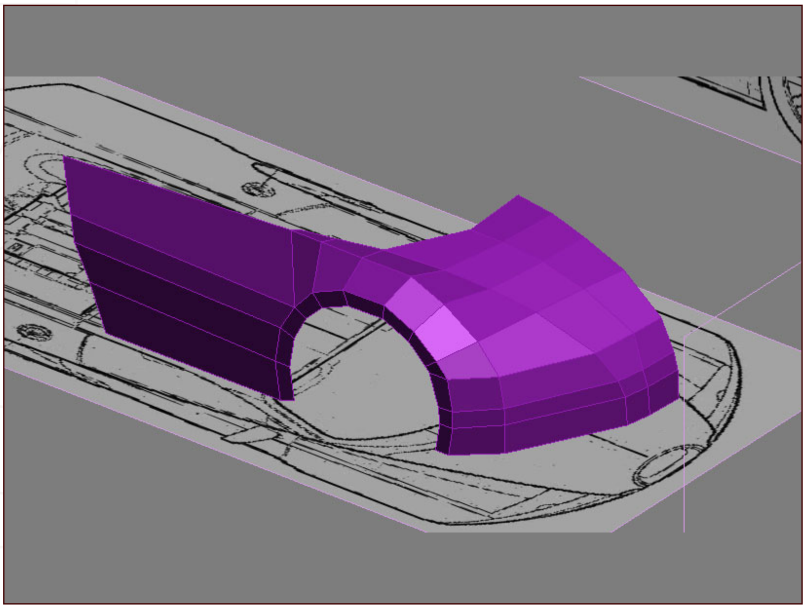


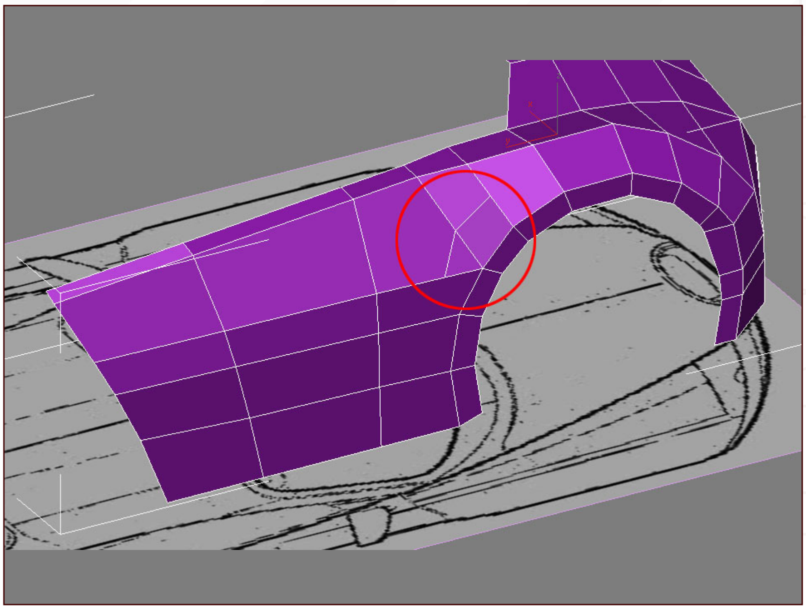
Fig 11

Fig 12

9. Whilst you are modelling, keep looking at the reference images and see where you should put your edge loops, as the wireframe you have planned might not be enough to know all the edge loops you will need (**Fig12** and **Fig13**).

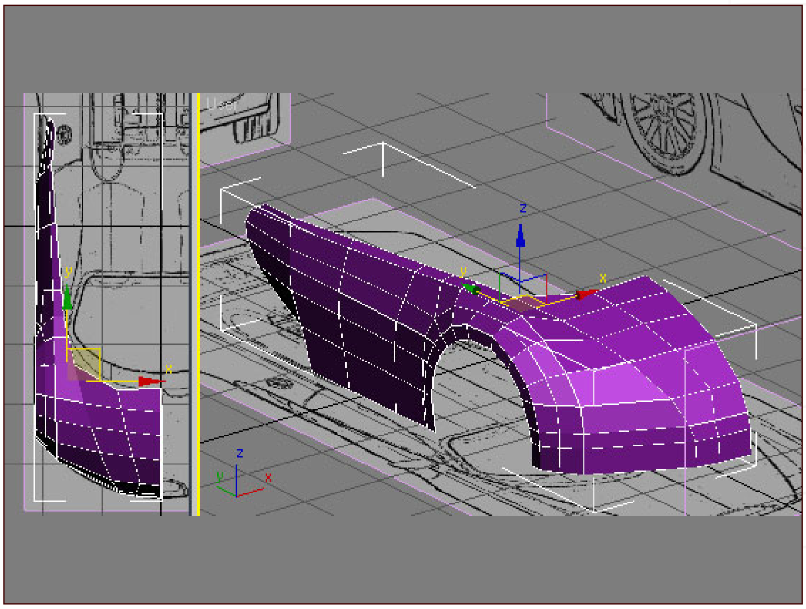
10. The red circle in **Fig13** shows where I have decided to start a new edge loop. The reason for that is because I noticed in one of the reference images how the flow happens in that area, and I simply made a quick cut, and to fix the tri I just collapsed that edge which helped to maintain a consistent topology.

Fig 13



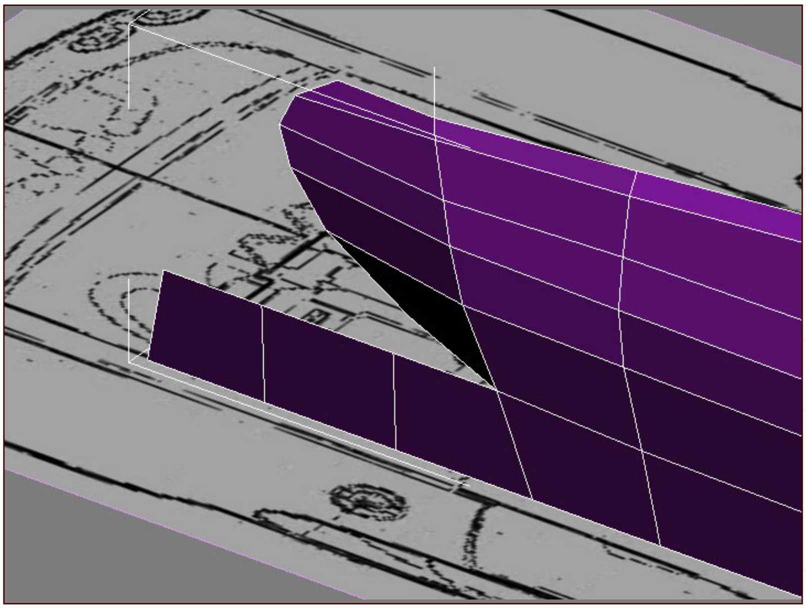
11. It's hard to say anything more here, as this part is mainly about planning the edge loops. The tools needed to create the basic mesh are pretty straight forward, as it's only extruding edges and moving the vertices, but none the less, having correct edge loops from the beginning will save you a lot of time in the later stages as you won't have to go back and rework the whole mesh. Doing a 3D model quickly doesn't necessarily need working like a machine with 10 mouse-clicks per second – it's more about knowing what you are doing! (**Fig14**)

Fig 14



12. Now, this part is a little bit tricky... As you can see from the reference image, this air intake is going inside a little bit and making a bevel, whilst the rest of the geometry continues the surface flow. It doesn't matter in which way you do this, as long as you understand the form. In my case, I just extruded the edges which start curving into the air intake separately, and extruded the lower edge which keeps the same form separately. I kept extruding that, then connected the edges and closed the gap. You could also do it in many other different ways; as long as you get the same form and similar edge loop, it's fine (**Fig15**, **Fig16** and **Fig17**).

Fig 15



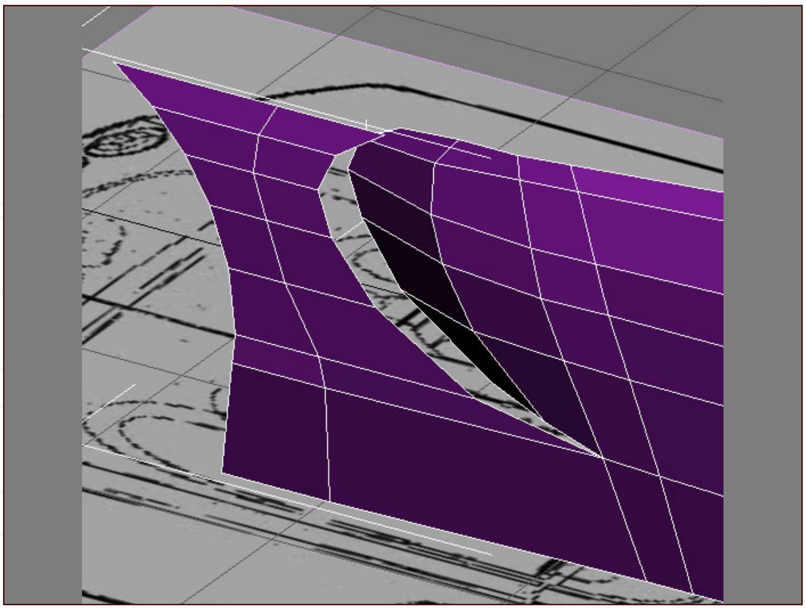


Fig 16

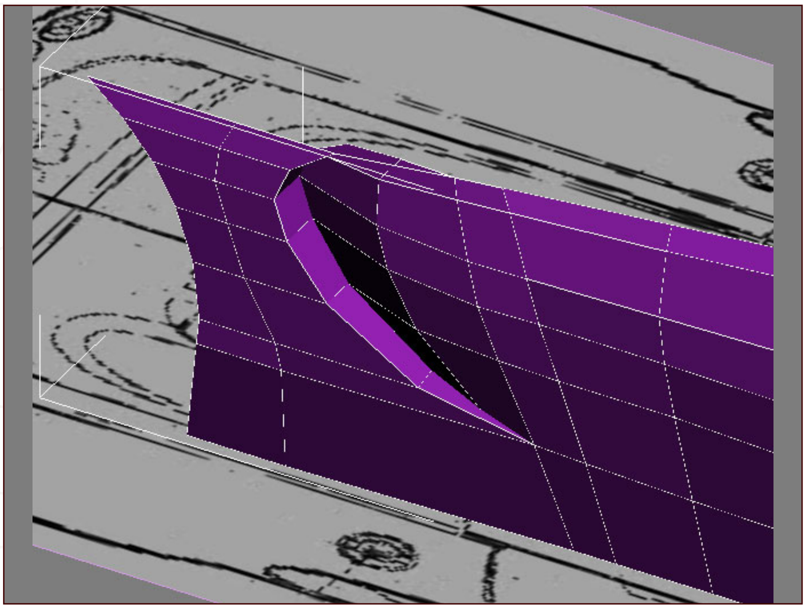


Fig 17

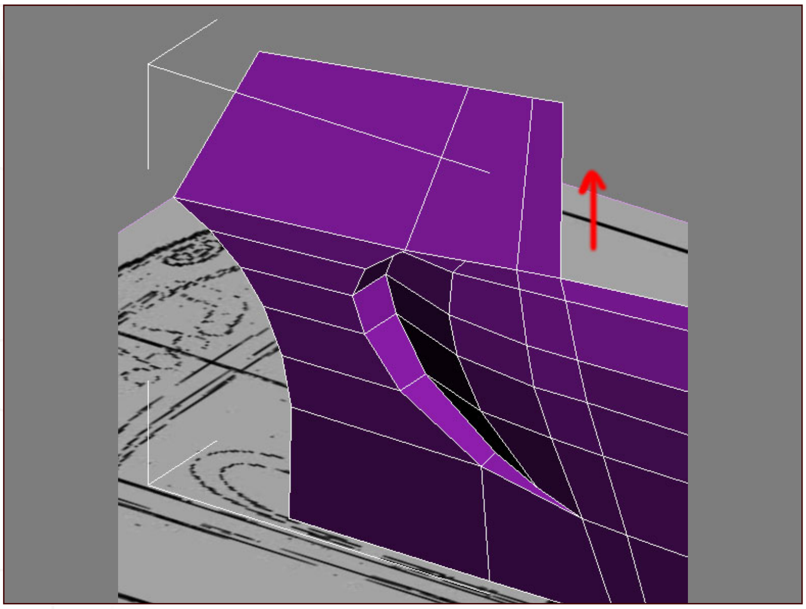
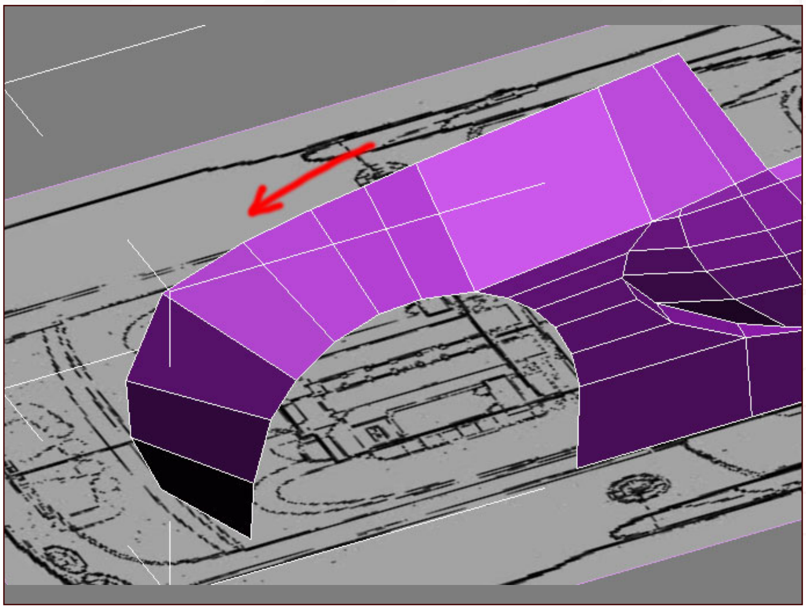


Fig 18

13. For the back body part, I've simply done this the same as I made the other parts, but I was very careful not to add too many edges and make the form complicated before I got the basic form. Again, I simply extruded edges (shown in the next image), made them follow the blueprints' outline, then extruded again whilst following the blueprints to get the exact curvature (**Fig18** and **Fig19**).

Fig 19



14. Then I simply extruded, or “copied”, the edges of the wheel arch to get this (**Fig20** and **Fig21**).

Fig 20

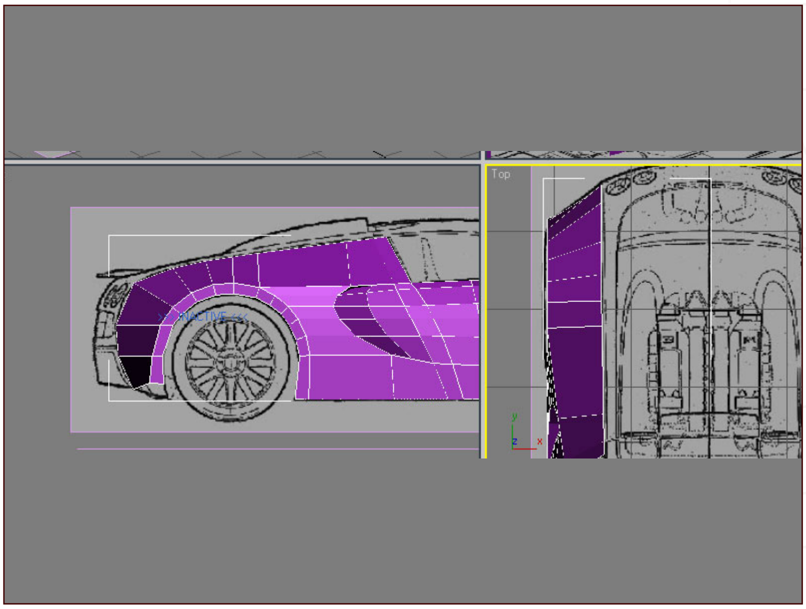
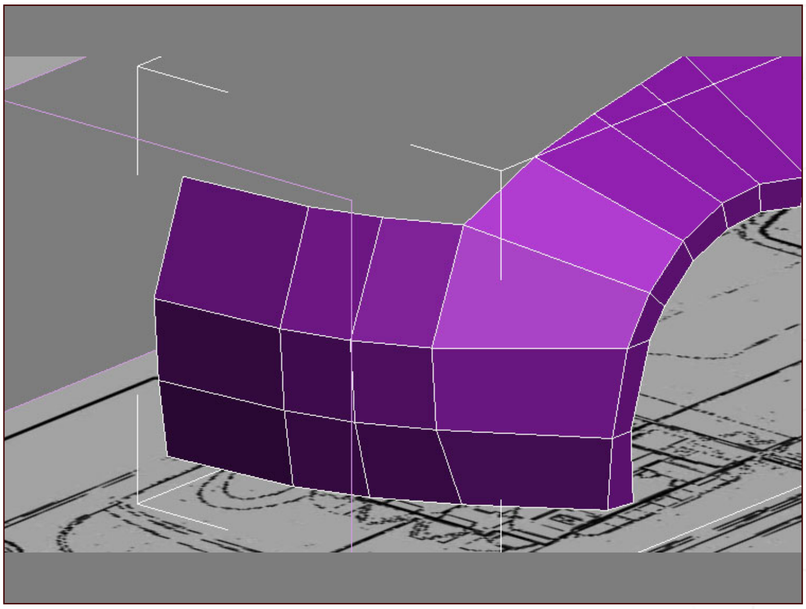


Fig 21



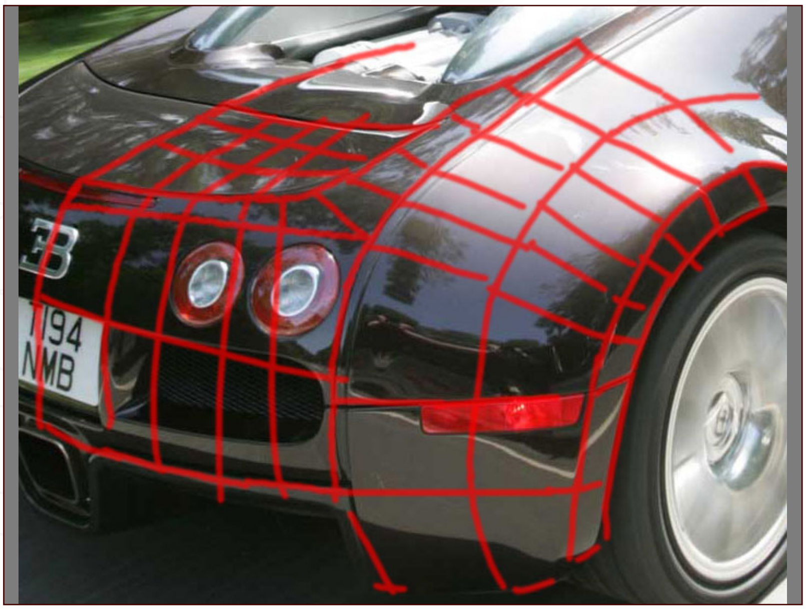


Fig 22

15. This is a quick drawing of a wireframe over the back of the car image reference. As you can see, it's nothing fancy, but it helps us plan what to do. You don't have to do a drawing yourself, but if you can visualise what edge loops are needed before you do them, it will be enough (**Fig22**).

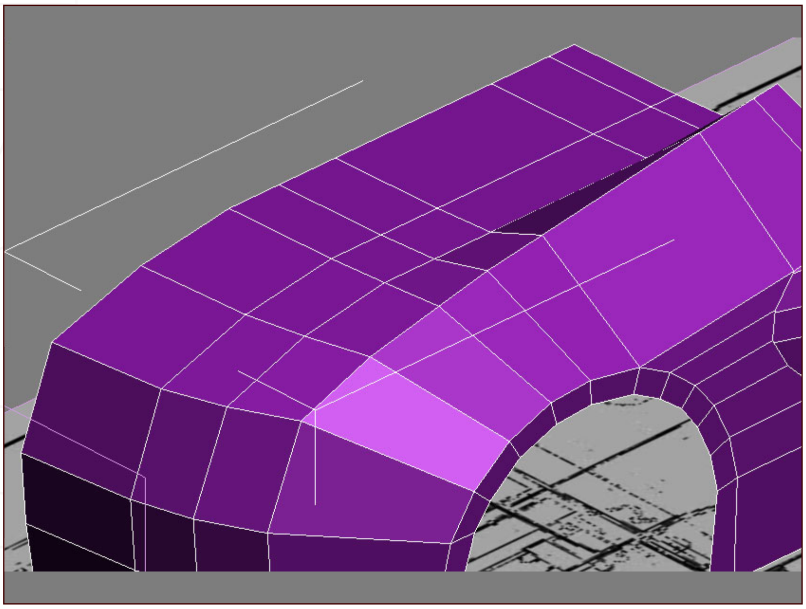


Fig 23

16. I copied the edges to get the main space, then made a cut along the edge I had in mind, and moved the vertices to get the correct form (**Fig23**, **Fig24** and **Fig25**).

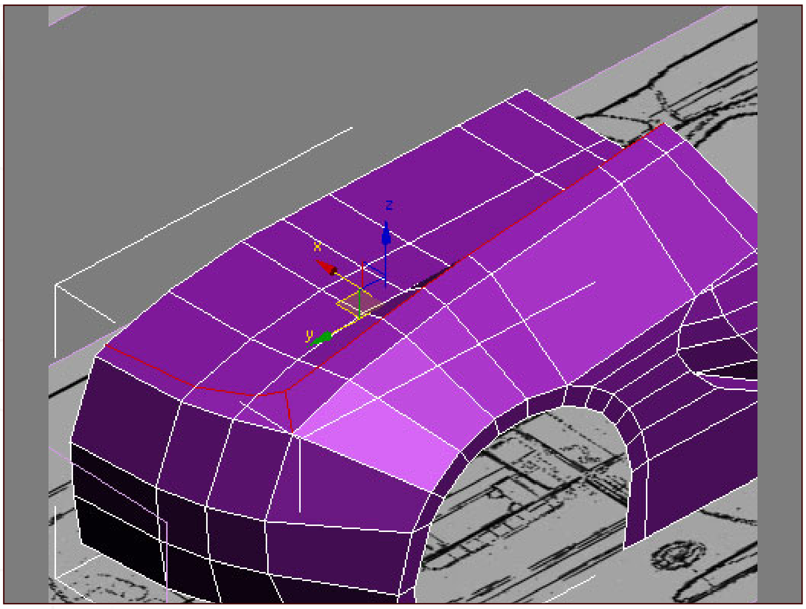
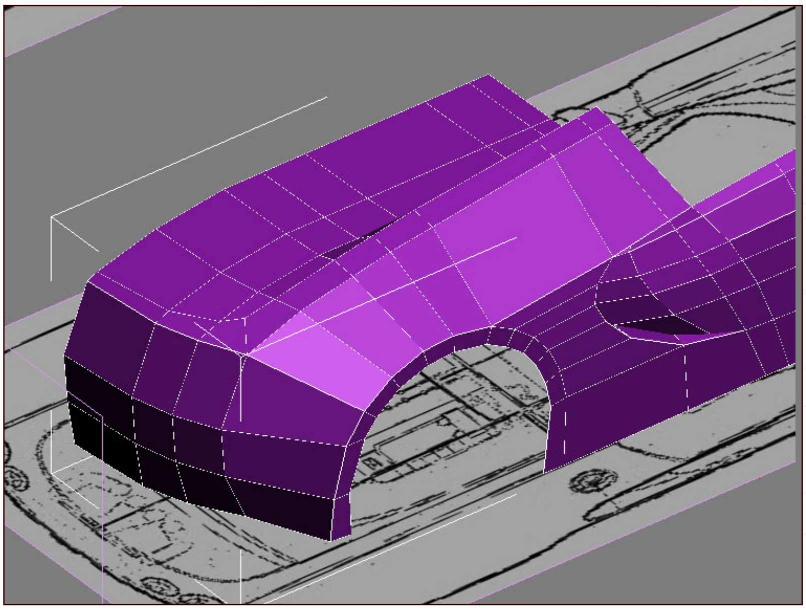


Fig 24

Fig 25



17. One important thing to mention here is that, while we are using blueprints, unless they have been supplied by the manufacturer, then you shouldn't consider them to be 100% accurate. For example, the ones that I am using, I've compared them with all the other blueprints I have and yet they all seem to have differences. So, while you are following them, you should keep an eye on the overall proportions and the details when compared to the photographs that you have also sourced for reference.

For the top part, I just used the same method again and tried to follow the blueprints and the curvature of the car (**Fig26**, **Fig27** and **Fig28**).

Fig 26

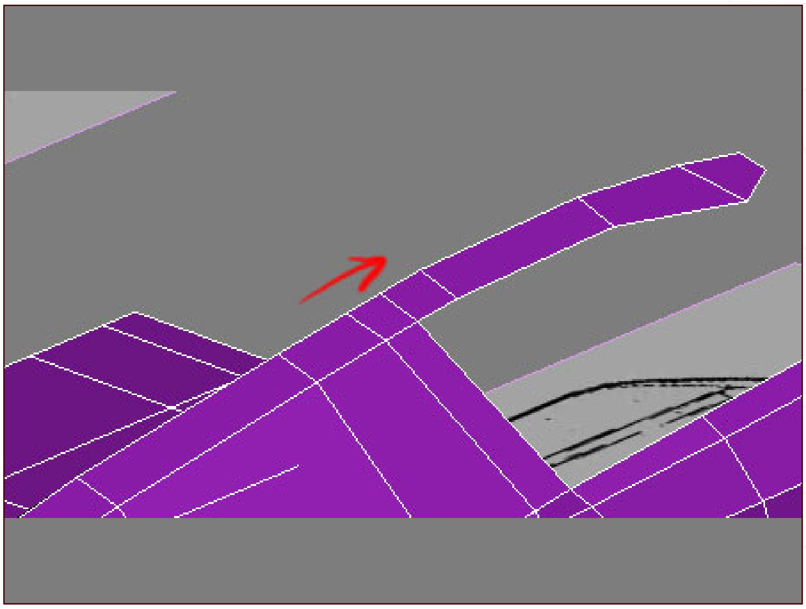
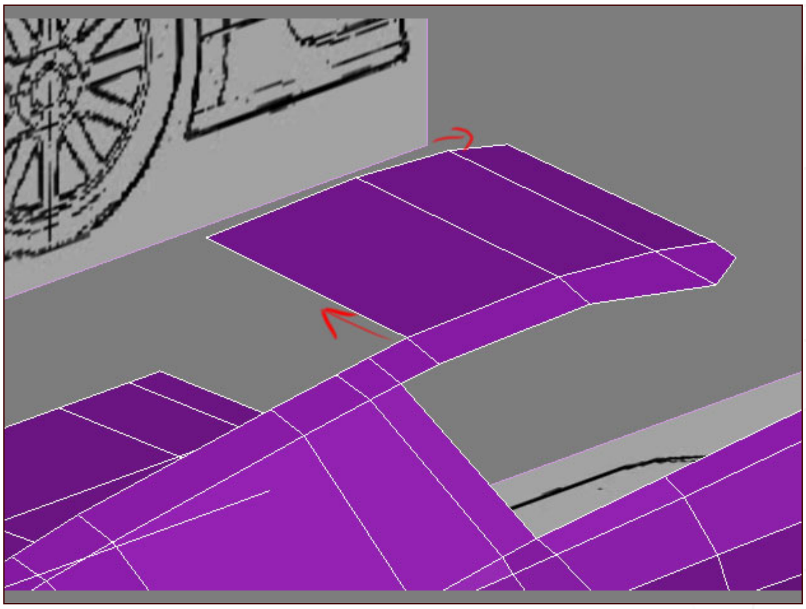


Fig 27



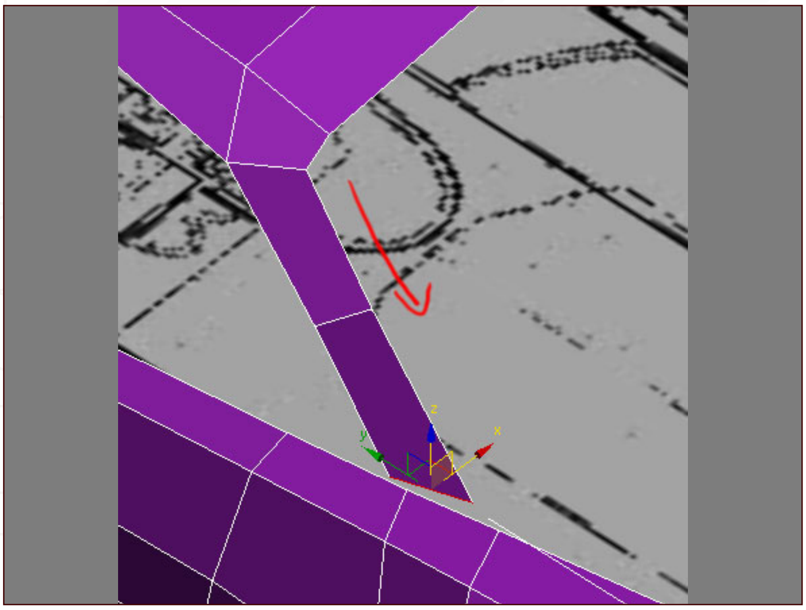


Fig 28

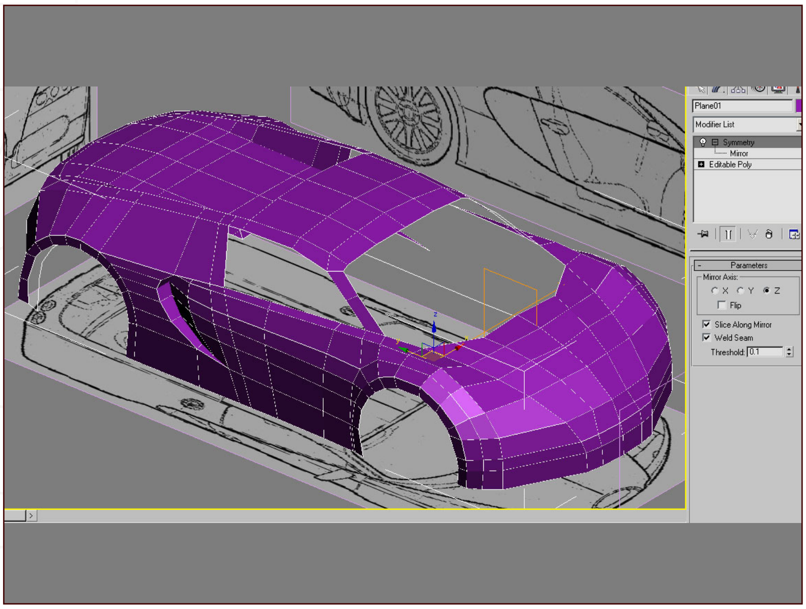


Fig 29

18. Make sure all the vertices you have are merged. Sometimes, when extruding a lot, you might forget a few "loose" vertices. It's okay also to keep modifying any of the vertices' positions throughout all the stages of the process (**Fig29**).

You should have, by now, the overall mesh, similar to this one (**Fig29**). If you have different ways to make the edge loops, or anything else different, then please feel free to experiment with it. In the next part we will take the simple mesh that we have just created, and we'll start adding more edge loops and almost finish the basic body work model. Whilst the mesh we have now might appear simple, it actually contains all of the bases that we need to add the details, which should be a lot easier now.

I have supplied the max file with this tutorial, which you should have something similar to when your are done. This is only for reference and you should easily manage to create a similar one by following the blueprints and wireframe. The max file is in Max 9 format and 3ds as well, just in case if you don't have Max 9.

BUGATTI VEYRON: PART 1

Tutorial by:
ALI ISMAIL

For more from this artist visit:
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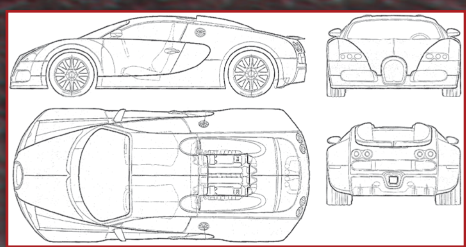

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Modelling the Chassis Part 1 - Basics

In this seven-part tutorial I will be explaining how to build a Bugatti Veyron car, from scratch. This tutorial is aimed at users of Cinema 4D who have a basic understanding of the 3D tools, but haven't modelled a car before. I am using Cinema 4D R10 studio edition and have not used any third party plug-ins to create the car in this tutorial. You will be able to follow this tutorial with earlier versions of Cinema 4D, but there will be limitations with previous tools and workaround can be found.

In this section of the tutorial, I will be covering how to set up the reference planes and begin modelling the Bugatti Veyron body. I will be explaining how to model in detail so that you can understand the techniques and tools used.

1. I can't stress enough how important it is to gather good reference materials and views from every angle, as you cannot rely on the orthographic plans found online being 100% accurate. Fortunately, the plans for the Bugatti Veyron are extremely good, as you can see from (**Fig01**) (please visit www.the-blueprints.com for blueprints). I've set them up in Photoshop and used guidelines to check that sections of the car line up.

2. I cut out each view and saved it as a separate .png or .jpeg file in a folder called 'tex', in the same directory as you'll be saving your cinema file. Open up Cinema 4D and add a plane object and a new material. In the colour channel, add one of the views. Note the resolution of the image. Change the height and width of the plane in the viewport to match the resolution of the image, and then apply that material to the plane (**Fig02**).

3. Click on the material and the illumination channel, and change the texture preview size to that shown in **Fig03**. Continue to do this for the other three views.

Fig 01

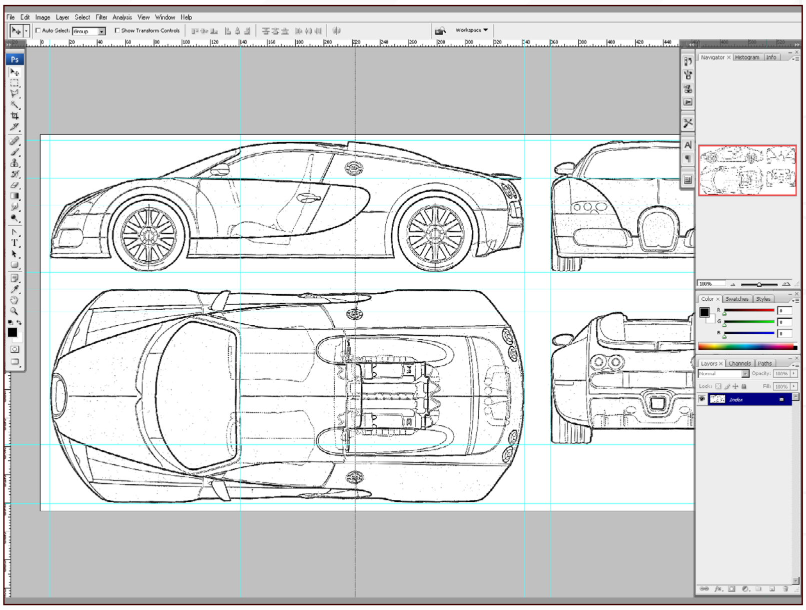


Fig 02

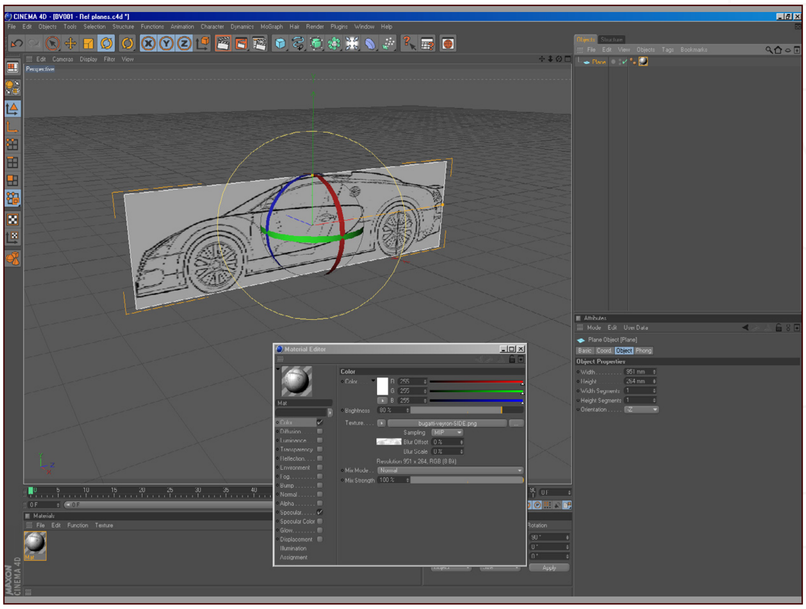
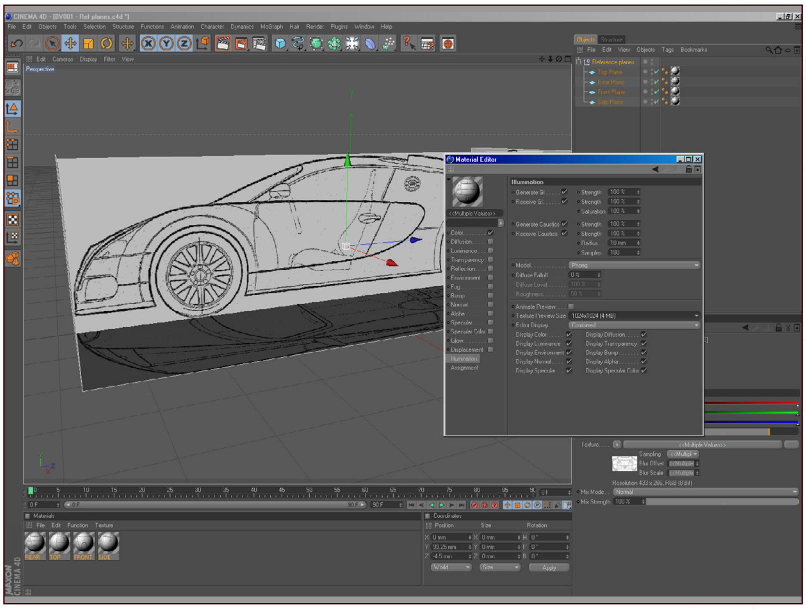


Fig 03



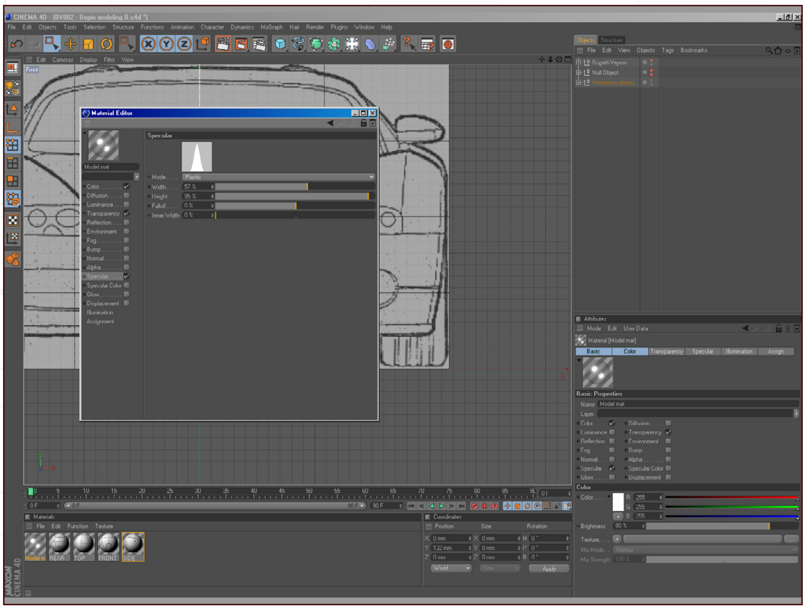


Fig 04

4. Add a new material and call it 'model'. Change its values to that shown in **Fig04**. I've added 80% transparency to help see through the model with the reference planes behind. In each viewport, press Shift + V and enable Enhanced OpenGL. This will allow you to view the transparency in the viewport. The scene is now ready to begin the modelling (**Fig04**).

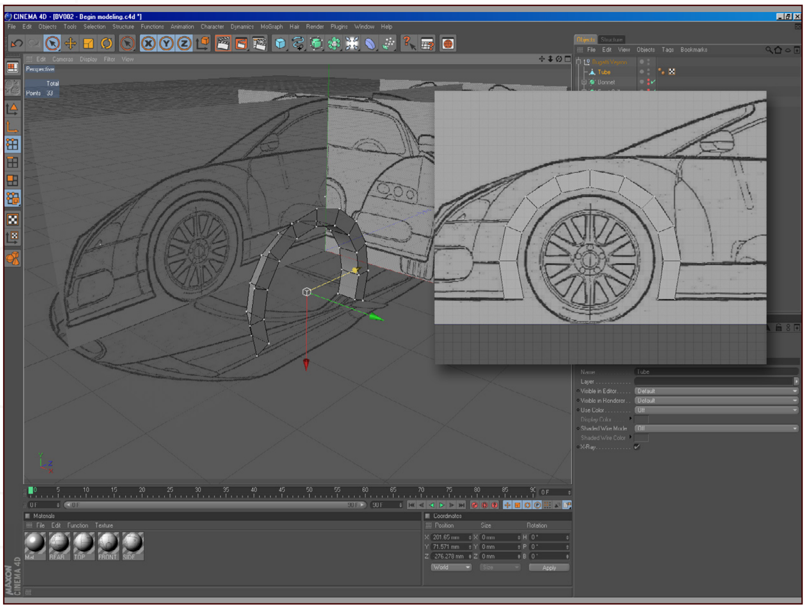


Fig 05

5. Add a tube to the scene and position/rotate it around the front wheel axis. Give the tube 16 rotation segments, then make the tube editable and delete the polygons, as shown in **Fig05**. Make sure you delete any adjoining triangles, then select points mode and deselect all points. Right-click and select Optimise, then click OK. This will weld any points that share the same position and will connect all of the polygons together. This is a quick way of creating a wheel arch that is even and round (**Fig05**).

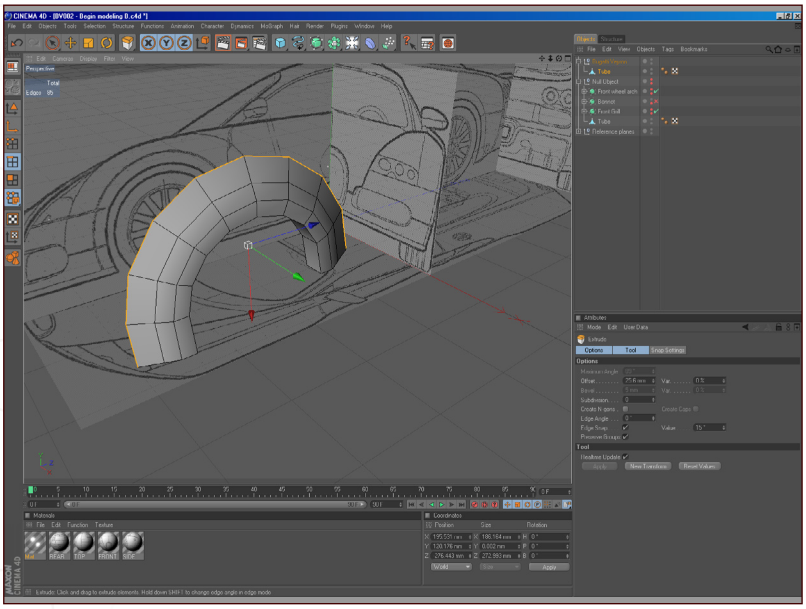
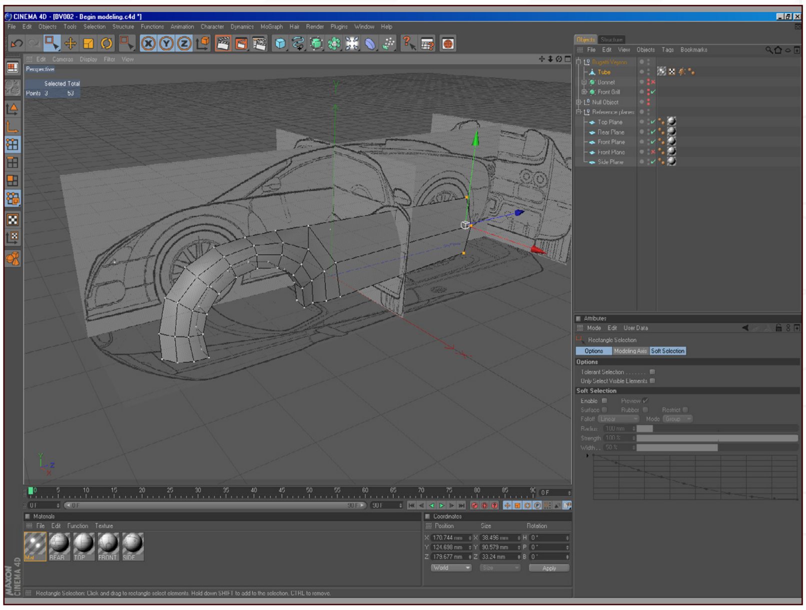


Fig 06

6. Select the outer edge ring and extrude it out. Repeat this again and move the points in each viewport to match the plans (**Fig06**).

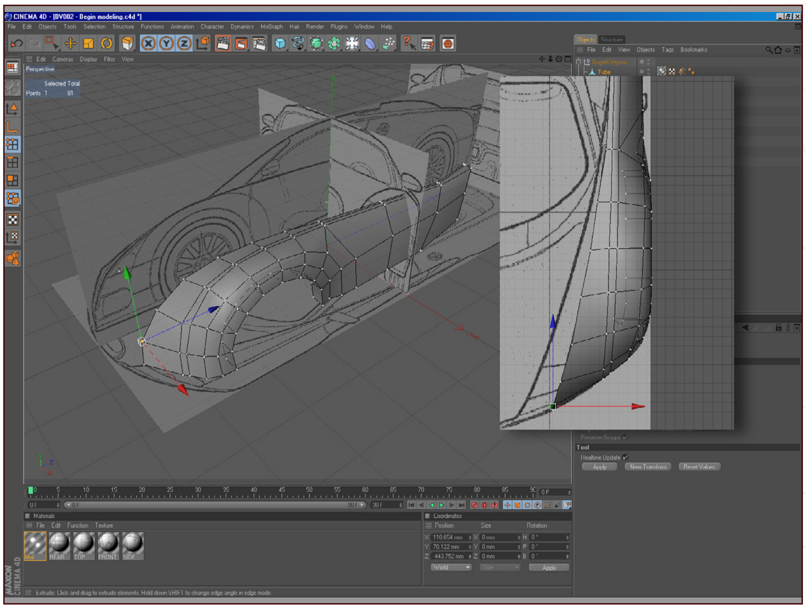
7. Again, edge extrude out and keep on moving points. Note that the points are extended for the full length of the door panel (**Fig07**). It's always good to keep mesh density down, especially on large panels, as this will give better smoothing results.

Fig 07



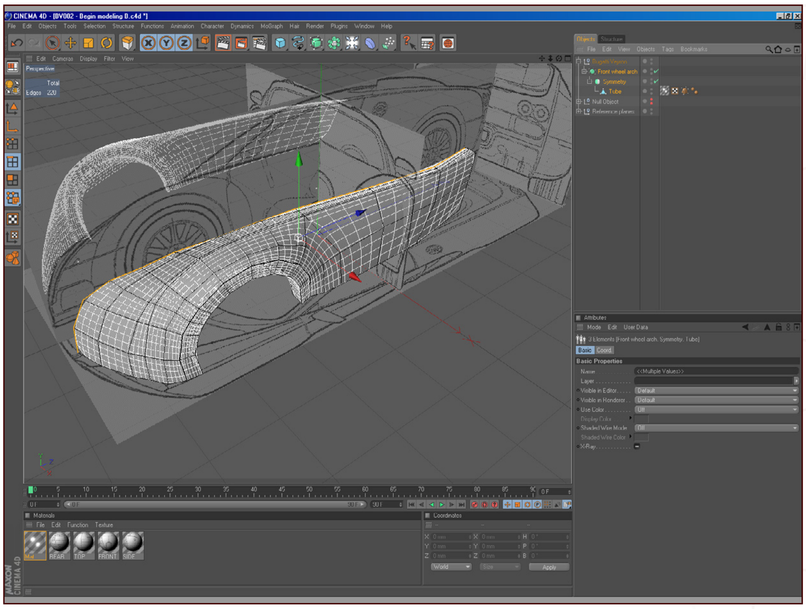
8. Continue edge extruding and pay particular attention to the flow of the mesh (**Fig08**). I've added 2 knife loop cuts to the door panels to help align them in the top view.

Fig 08



9. Time to add a hypernurbs and symmetry object to our model. This is where our model begins to come to life! Place them in the hierarchy shown in the object manager, as shown in **Fig09**. The symmetry object mirrors our mesh in the Z plane, and the hypernurbs smooth the mesh.

Fig 09



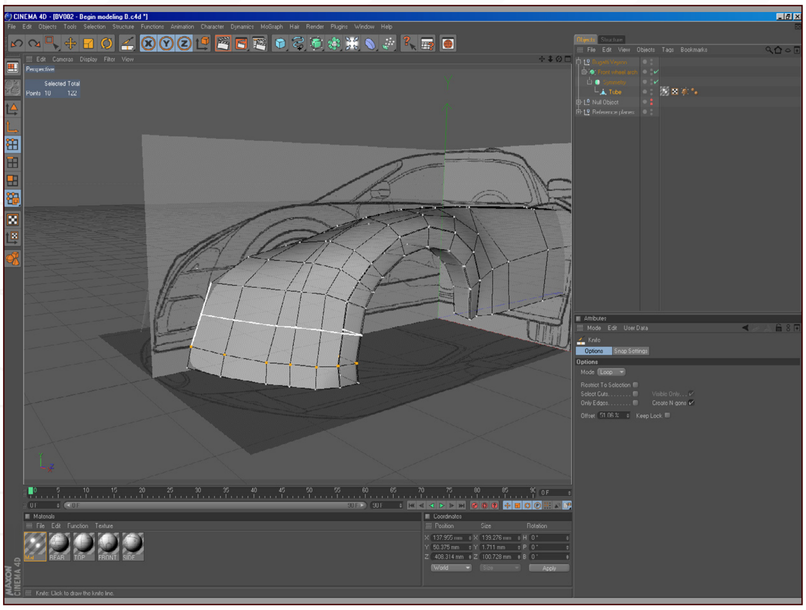


Fig 10

10. We now need to add more loop cuts to the front of the wheel arch to add more polygons, to help create the vents later on (**Fig10**).

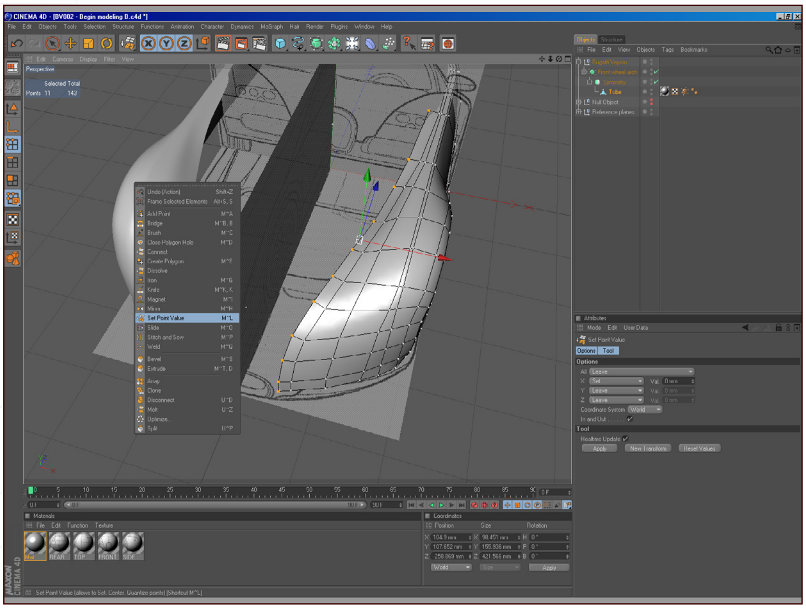


Fig 11

11. Extrude the edges and select the end points created in (**Fig11**). Right-click and press Set Point Value. Set the options, as shown in the tool attributes (**Fig11**). This will set the points at 0 (zero) in the X axis, and the symmetry object will weld both halves together, giving a smooth panel.

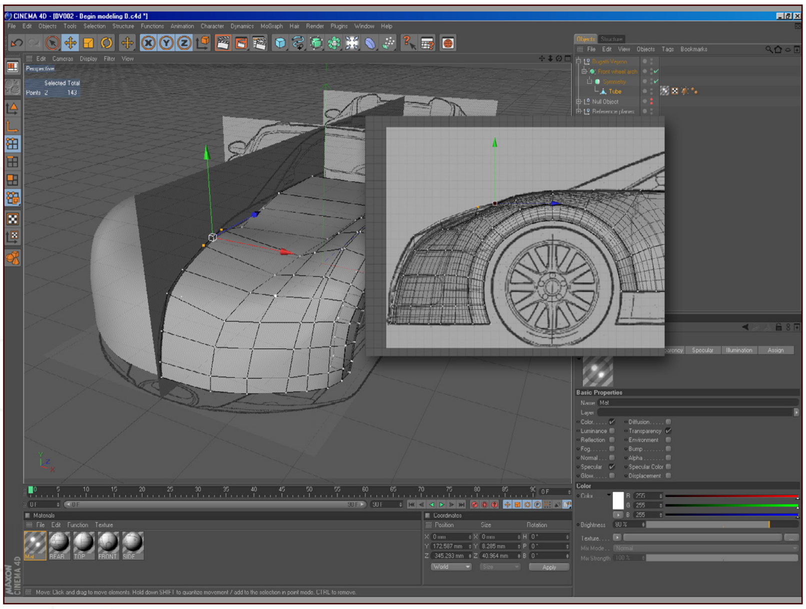
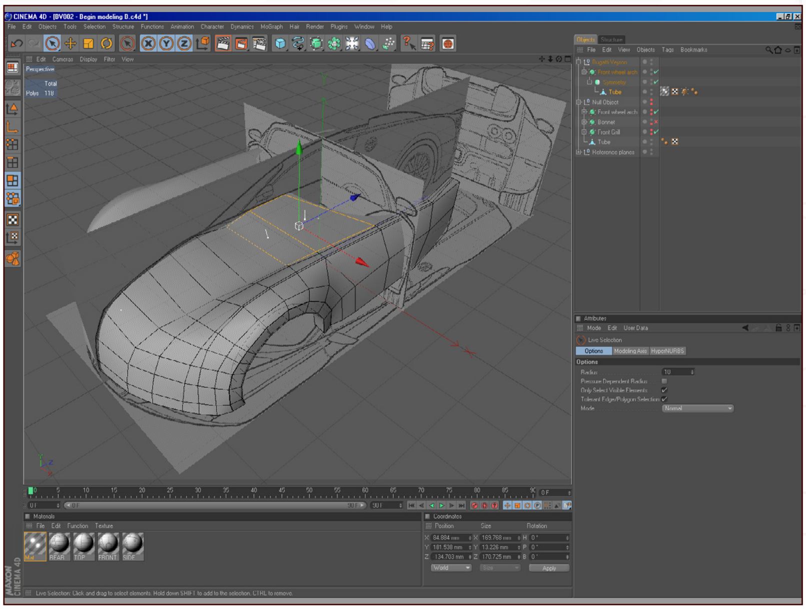


Fig 12

12. Now begin to move these points, remembering to align them in all views (**Fig12**).

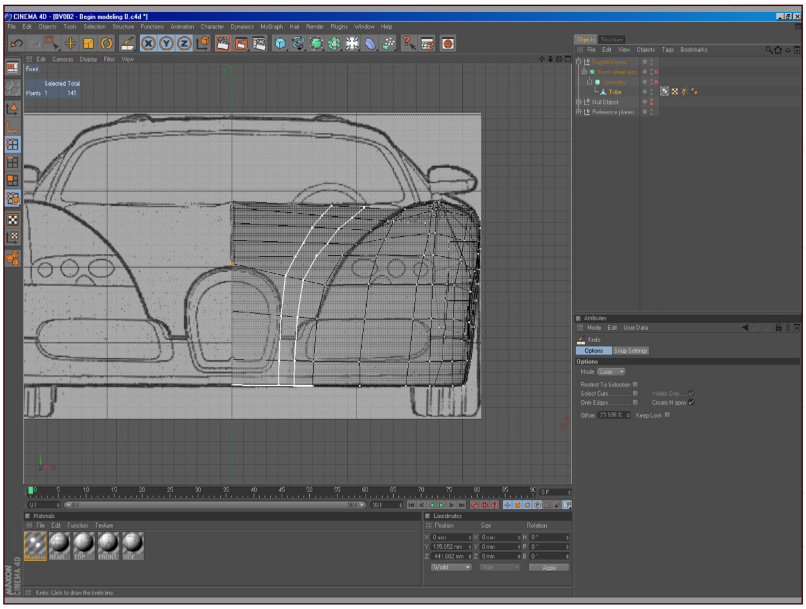
13. At this point I realised I'd made a mistake in extruding too many edges, but this is a simple amendment and everyone makes mistakes. Select the polygons shown in (**Fig13**) and press Delete. Now optimise the points to get rid of the unwanted points.

Fig 13



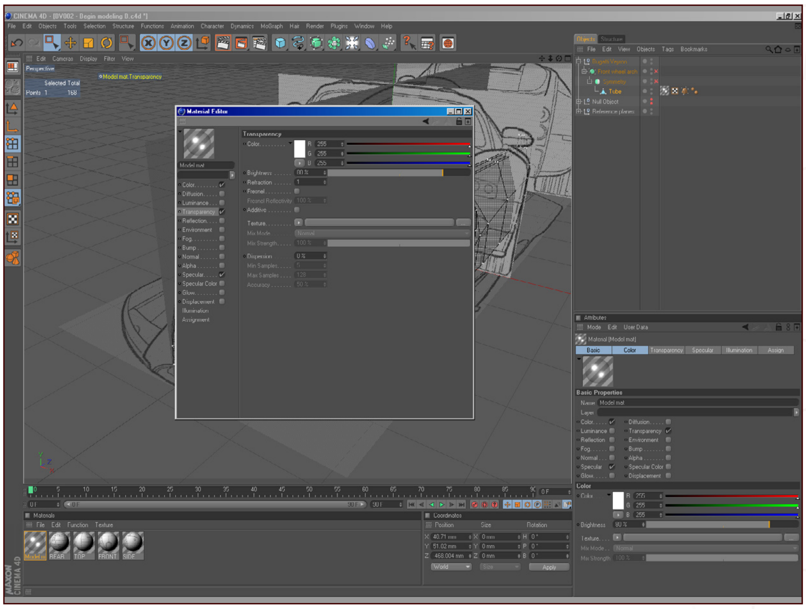
14. Add loop knife cuts to the bonnet in the areas that will need the most detail, as shown in **Fig14**.

Fig 14



15. Now open up your model material and Alt-drag the transparency channel (text) in to the viewport (**Fig15**). This adds the transparency to the HUD and allows you to click the transparency on/off very quickly. Anything can be added to the HUD, so if there is something you use all the time then just simply click and Alt-drag it. Ctrl-drag in the viewport to reposition it.

Fig 15



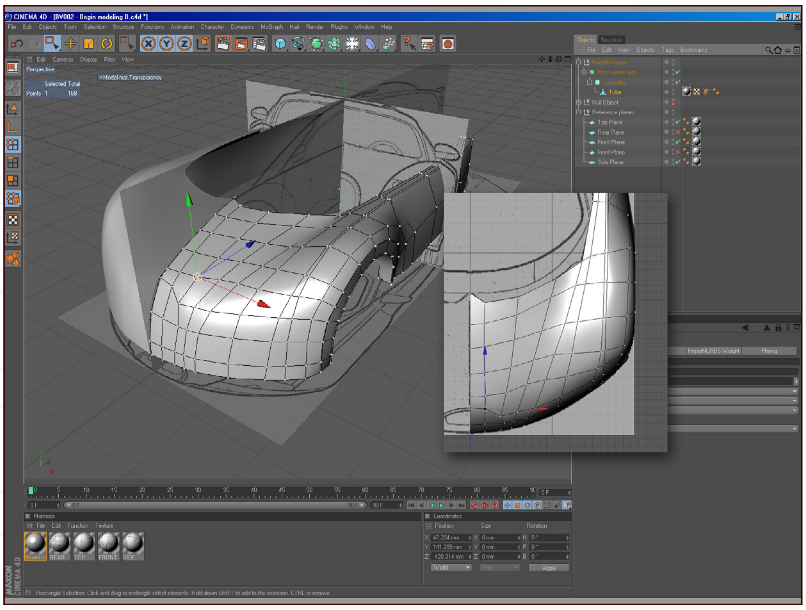


Fig 16

16. In **Fig16**, I've added more knife loop cuts and positioned the points, paying particular attention to the flow of the bonnet on the front grill.

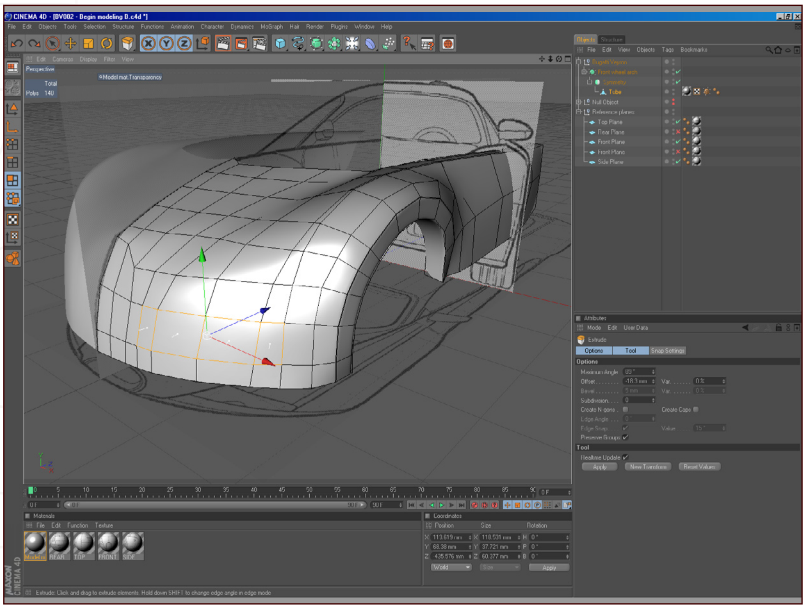


Fig 17

17. Select the polygons, as shown in **Fig17**, and extrude them inwards, then press Delete.

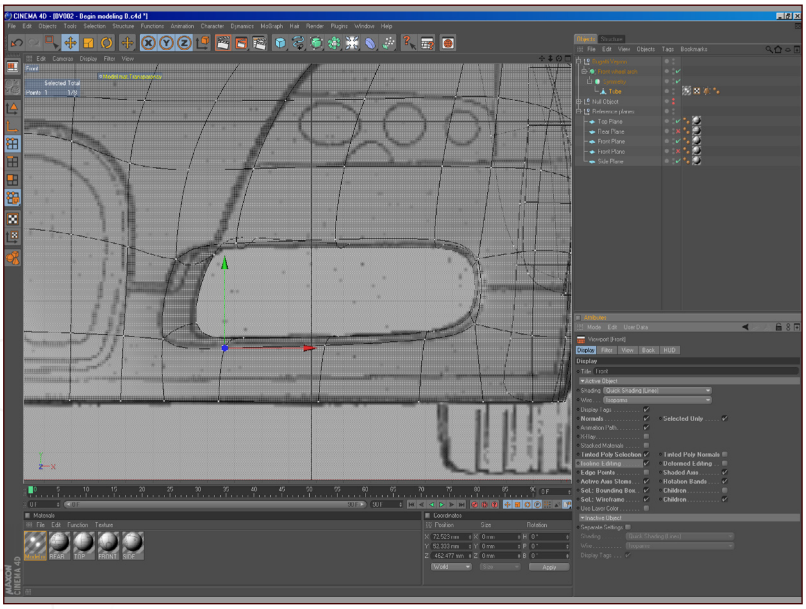
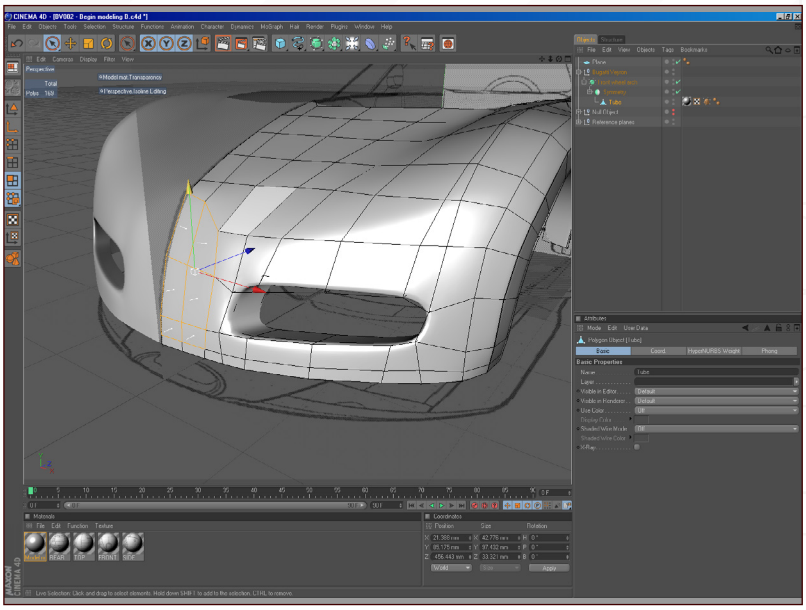


Fig 18

18. Press Shift + V on your keyboard, and add the Isoline Editing to the HUD, as shown in **Fig18**. This will help you to distinguish the points to position the hypernurbs mesh around the vent.

19. Select the polygons, as shown in **Fig19**, and extrude inwards.

Fig 19



20. Delete the inner most points, as shown in **Fig20**, and select the points shown in **Fig21**. Set the point value. Note that the tool should have the previous settings, then press Apply.

Fig 20

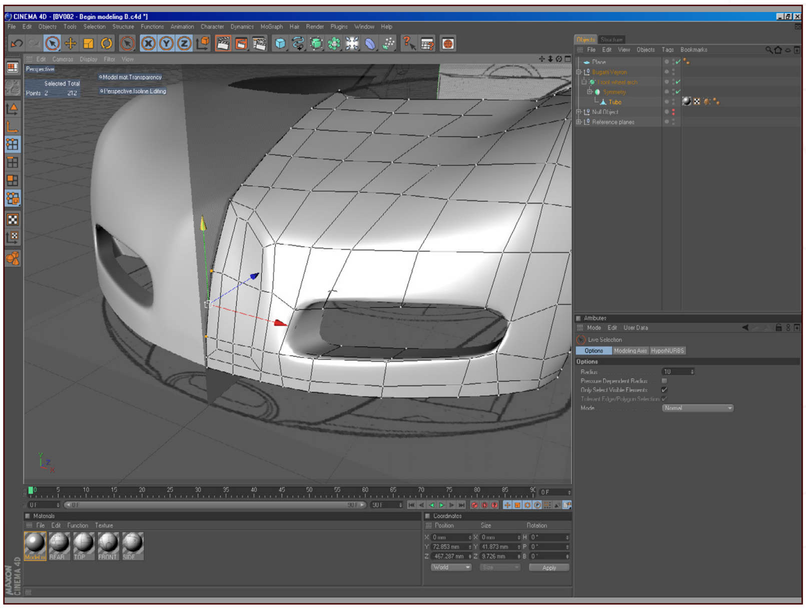
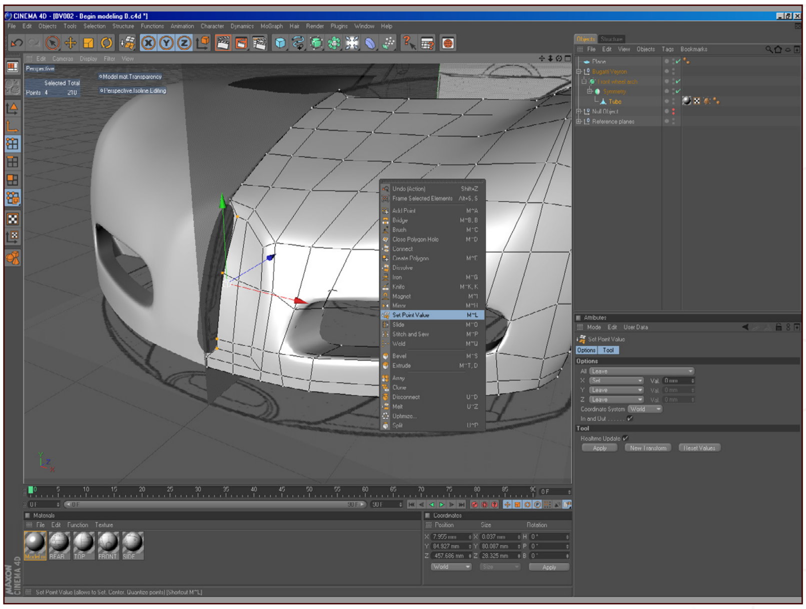


Fig 21



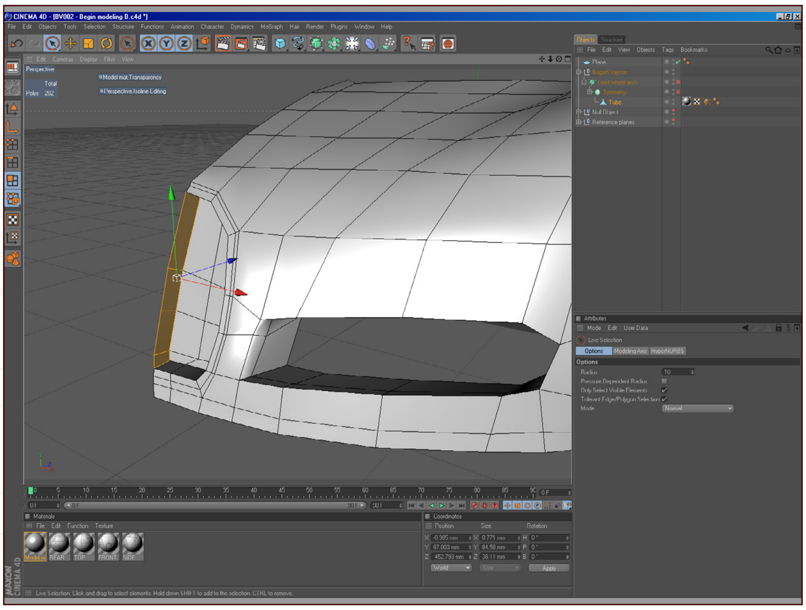


Fig 22

21. Do a loop knife cut in the ring of new polygons created, then select the same polygons as before. Extrude inwards and delete the polygons as shown in **Fig22**.

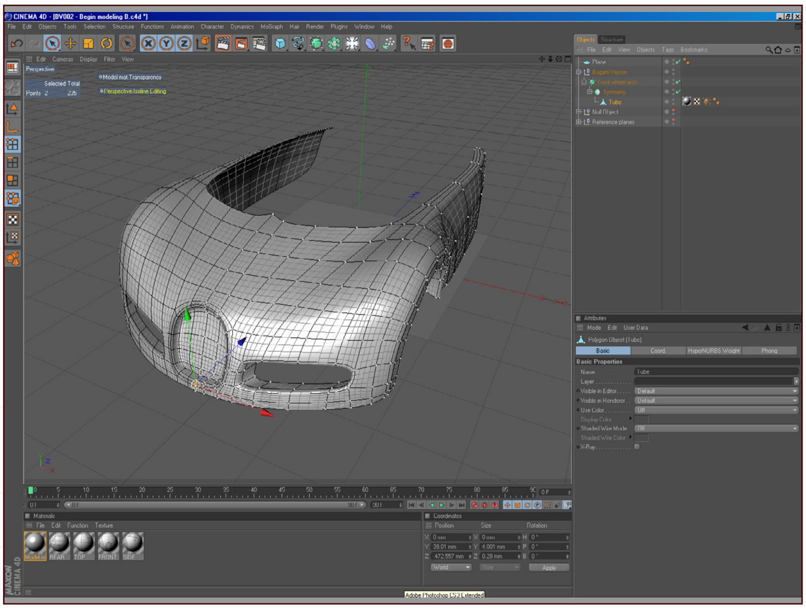


Fig 23

22. The front section of the car is now complete (**Fig23**). Detailing for this section will carry on in the next part of the tutorial.

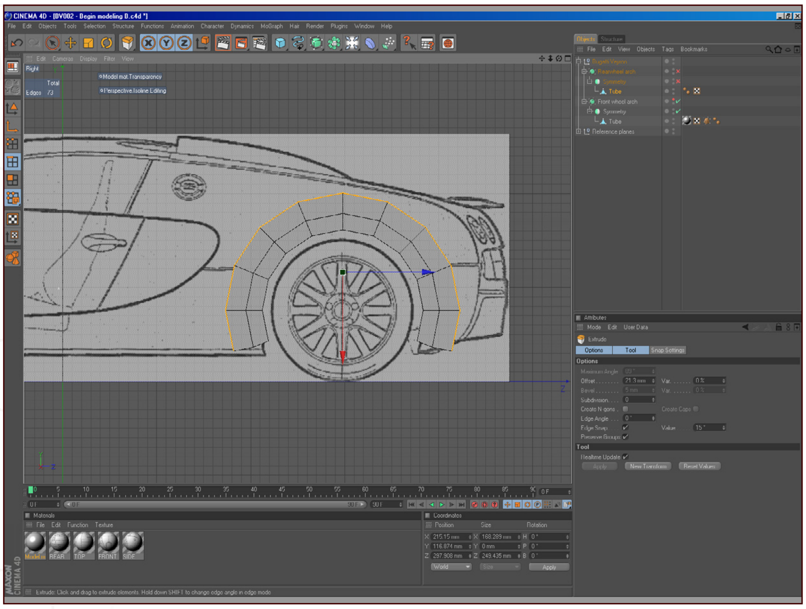
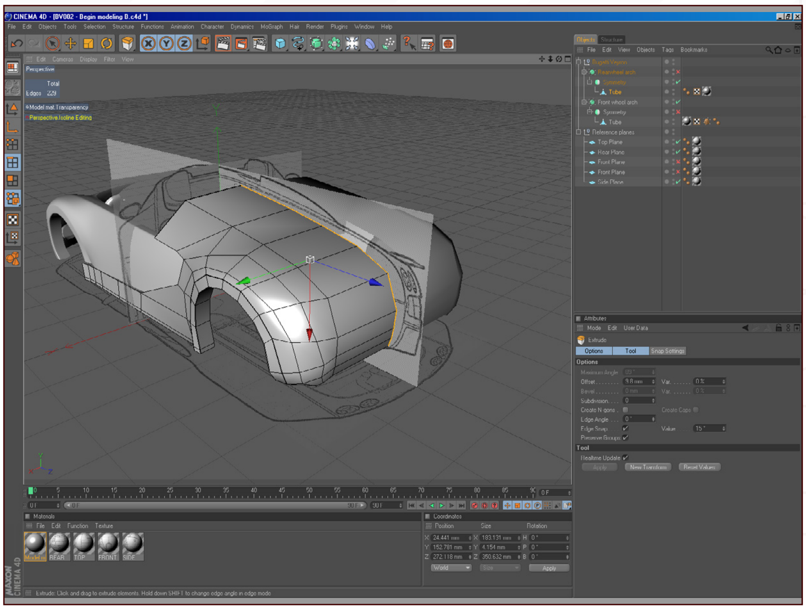


Fig 24

23. Now it's time to begin the modelling of the rear wheel arch, rear and roof. You now know the techniques used to create the front section, so this will be a brief overview of the steps to create the rear. Again, I add a tube and edit it to begin modelling the rear wheel arch (**Fig24**).

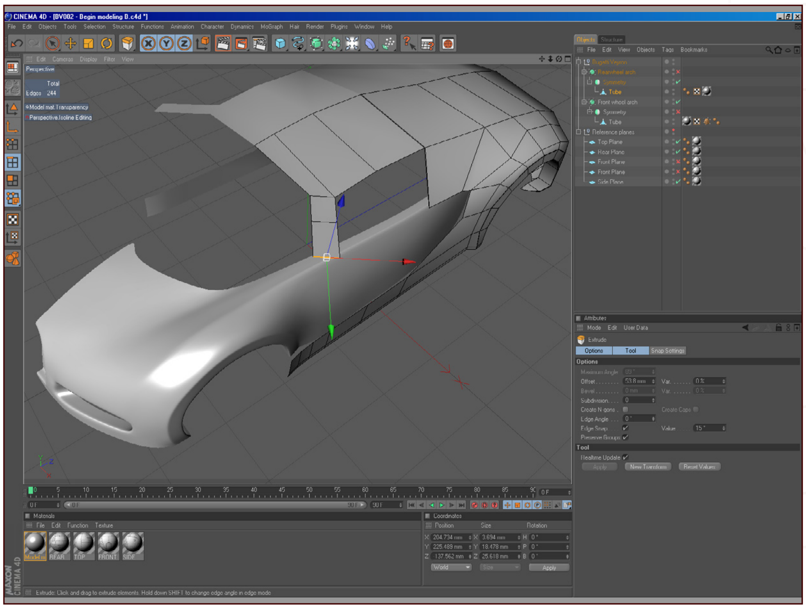
24. I keep edge extruding and positioning each point in the separate views (**Fig25**).

Fig 25



25. Edge extrude to create the roof and position points (**Fig26**).

Fig 26



26. Add loop cuts to the roof/rear to give more detail and to help shape the curvature of the rear. **Fig27** shows what you should have at this point. We will be adding more detail to the body in the next part of this tutorial.

Fig 27

Bugatti Veyron: Part 1

Tutorial by:
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Bugatti Veyron
car modelling series

lightwave

The series will cover an in-depth and comprehensive guide to modelling the amazing Bugatti Veyron car, from start to finish, and will focus on the key techniques and stages involved in building the chassis, as well as details such as the windows, lights, vents, petrol caps, engine parts and so on. We will then move on to creating the wheels, including tyres and hubcaps, before going on to building and incorporating an interior, namely the dashboard and seating. The series will proceed with a section on creating and applying materials for the numerous parts of the car, such as the paint work, chrome, rubber and glass, before concluding with a tutorial devoted to setting the scene for a finished render. The final part will cover the importance of a good lighting rig and light parameters, as well as the importance of a camera and the integral part that the rendering settings play in showcasing the model for a portfolio.

This series aims to show a comprehensive guide to creating a finished car for people new to this type of exercise, but is not suitable for beginners who are not familiar with using 3D software. The tutorials do not detail every single step of adding individual edge loops and vertices, but does endeavour to outline each important stage and explain the crucial techniques necessary to following the exercise.

The schedule is as follows:

Issue 029 January 2008
Modelling the Chassis - Basics

Issue 030 February 2008
Modelling the Chassis - Details

Issue 031 March 2008
Lights, Radiator Grill & Vents

Issue 032 April 2008
Wheels, Tyres & Rims

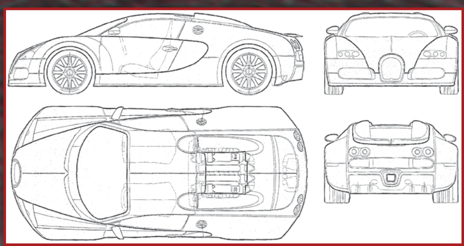
Issue 033 May 2008
Interior

Issue 034 June 2008
The Materials & Finishes

Issue 035 July 2008
Lighting Set up & Render

Enjoy ...

Blueprints available here:



www.the-blueprints.com

Modelling the Chassis Part 1 - Basics

This is the starting part of the tutorial series to build a Bugatti Veyron 16.4, in LightWave 3D. The intent of this is not to teach you every tool in LightWave, and so a certain amount of knowledge of LightWave is assumed. I will, on some occasions, use commercially available plug-ins; however I will try and point you to tools that will enable you to achieve the same results within LightWave in its standard form, albeit perhaps less easily.

To the best of my knowledge, the only feature being used specific to later versions of LightWave is the Catmull-Clark subdivision option. Traditionally, LightWave always required subdivision geometry to be maintained as quads or tris. This has always carried an overhead in always ensuring any additional cuts in the polys would need to be terminated in tris, at worst. Some considered it good working practice – perhaps. Personally, I consider it a handicap. Catmull-Clark allows the subdivision of nGons (polygons with greater than 4 sides). Care is still required though to ensure the smooth division of such polygons. If you are using LightWave 8.5 or earlier, you will need to ensure you don't have nGons, but as such it is not a crucial factor in the modelling of this tutorial.

1. Our first job for any vehicle model based on a real world example, is to acquire suitable plans of the vehicle. Luckily, you should already posses those (please visit www.the-blueprints.com for blueprints), so let's start by setting them up.

The first task is to use Photoshop (or a similar programme) to break out the separate views for loading in to the viewports. Select a tight crop of each view and save as a separate image. Having done that, we now need to give LightWave a scale guide. For this, we simply need to create a box with the bounding

Fig 01

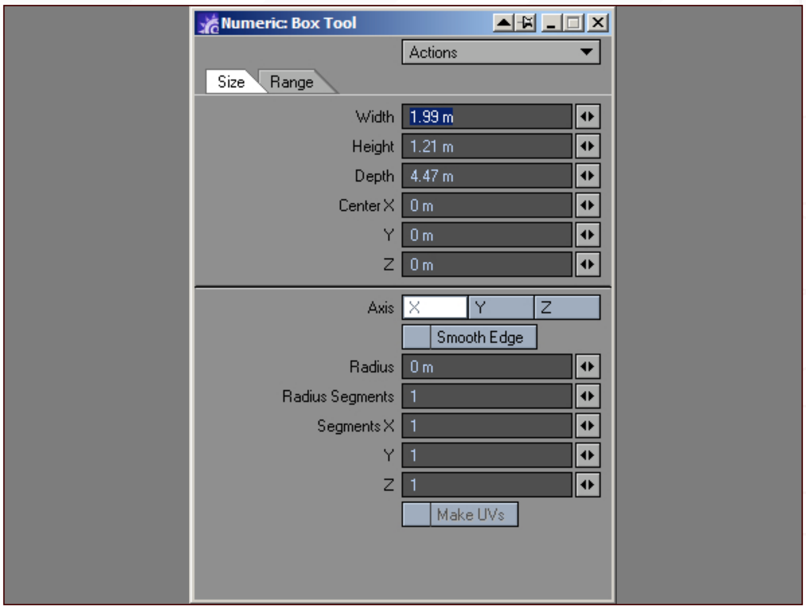


Fig 02

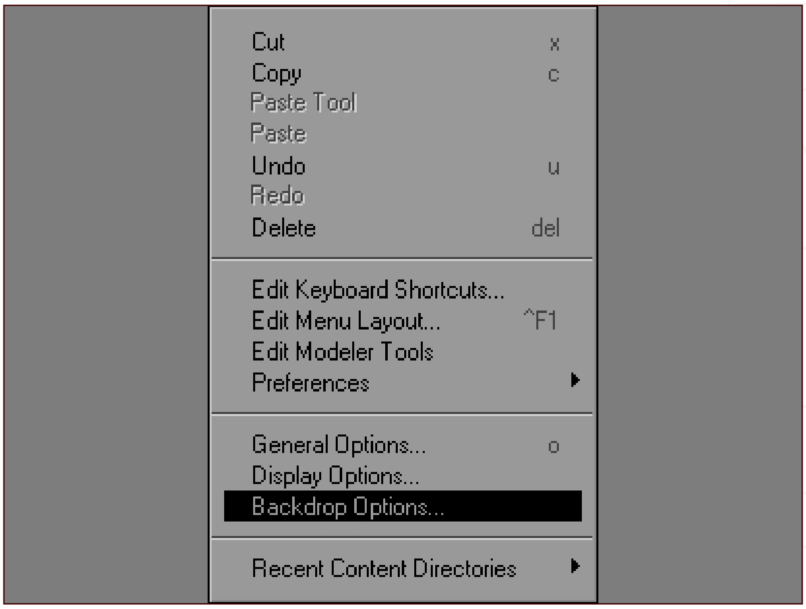
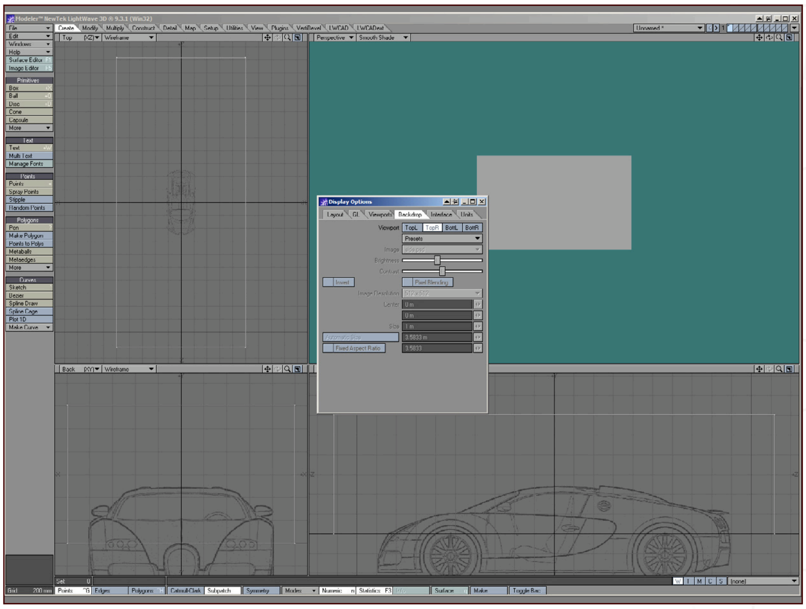


Fig 03



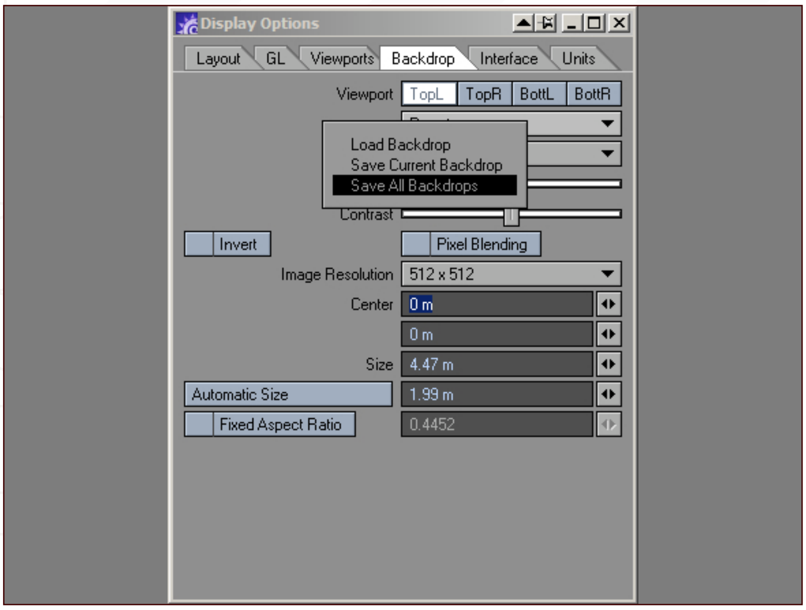


Fig 04

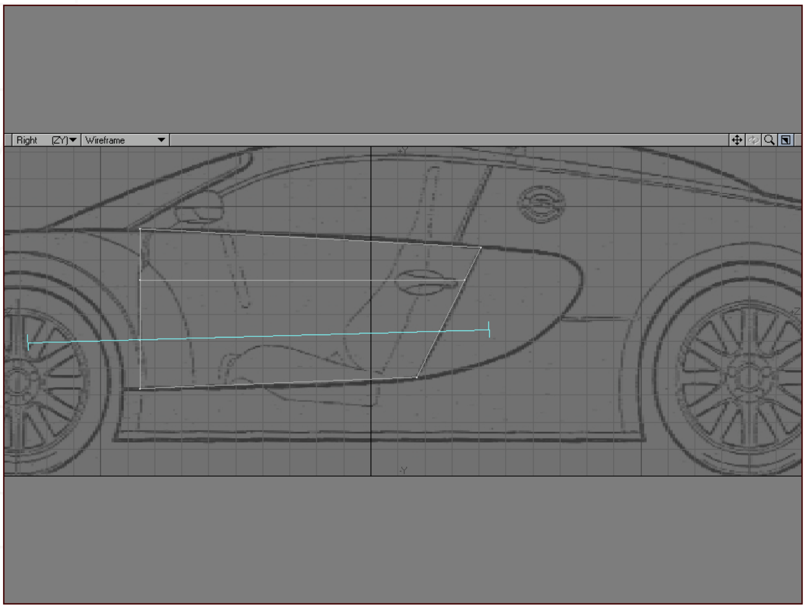


Fig 05

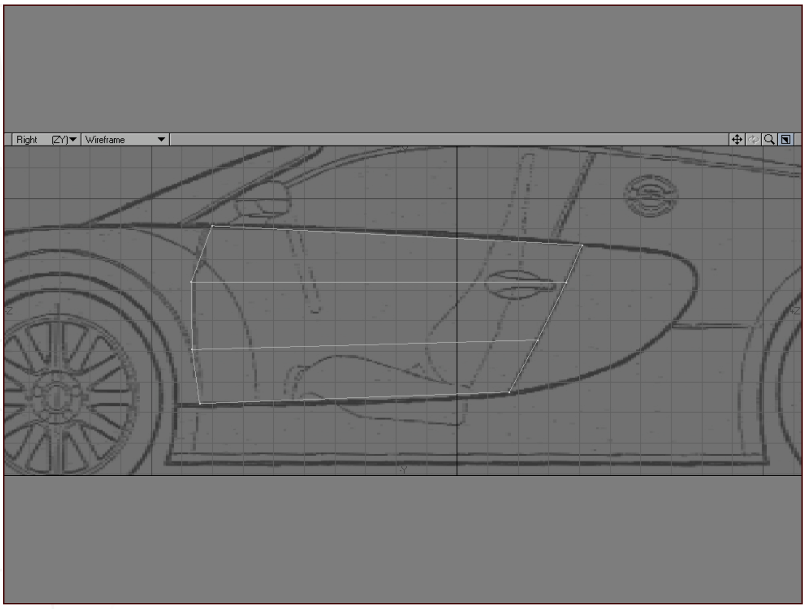


Fig 06

dimensions to match the Veyron.

The prints I have used don't have the dimensions on, so a quick visit to the Bugatti website soon got me the numbers I needed to create a guide box. Ensure the bottom of the box is located on zero in the Y axis. This means the car will be modelled with the wheels at rest on the ground. This will be used as a snapping guide to give the backdrops the correct proportions and real world units (**Fig01**).

2. Next up, we need to get to the backdrop options in the Edit menu in order to load in our backdrops. We can then assign the top, front and side views to the respective viewports (**Fig02**).

3. As can be seen, the backdrops are centred on zero in each viewport, so to remedy this select each viewport in turn and click "Automatic Size". This will fit the backdrops to the relevant profile of the guide box, and assures us that the real world sizes are correct (**Fig03**).

4. Having got our backdrops aligned to the guide box, we just need to get the settings saved. This will allow us to recall and load up the backdrops in their current position, without the need for the guide box procedure.

Once the backdrop settings are saved, you can clear the box out of modeller. Just in case of future need, I always save the box object just in case I need to set the backdrops up again for any reason (**Fig04**).

5. Next up, we start the process of building the car. There are several methods that can be used. One common method is splines; however, my preferred method is to build with polygons from the outset.

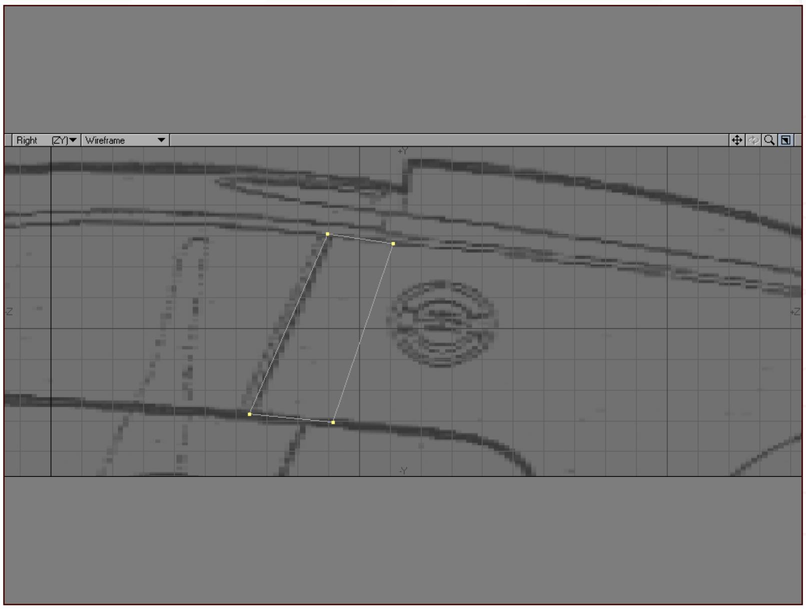
The first step in this process is building the door panel. There isn't a specific method to this madness, you could start with any of the side panels first. This is achieved in this instance by

creating a single square polygon and using the knife to split the polygon (**Fig05**).

6. This will create sections that will allow the general curvature of the front and rear edges of the door to be outlined (**Fig06**).

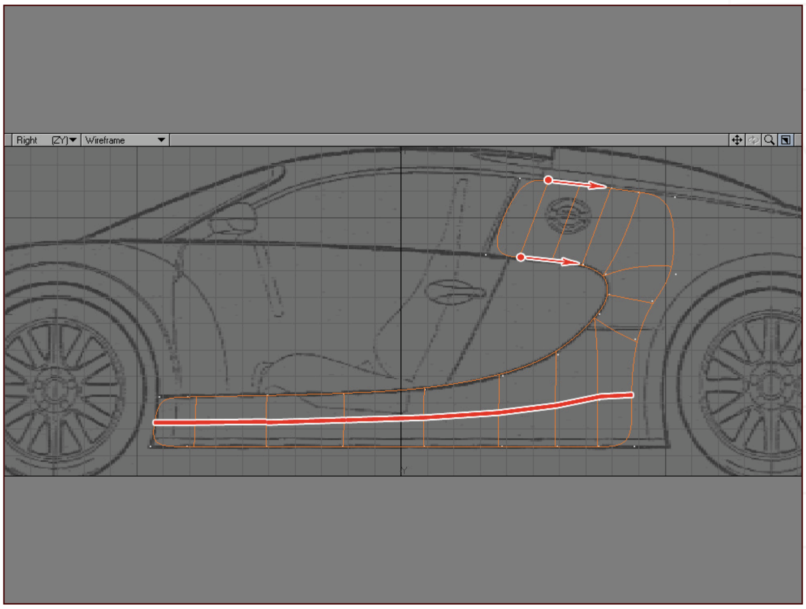
7. With the base door shape down, we can now start on the rear quarter panel. As with the door, we start with the simple process of a single polygon. Use the Drag tool (Ctrl D) to move the points around (**Fig07**).

Fig 07



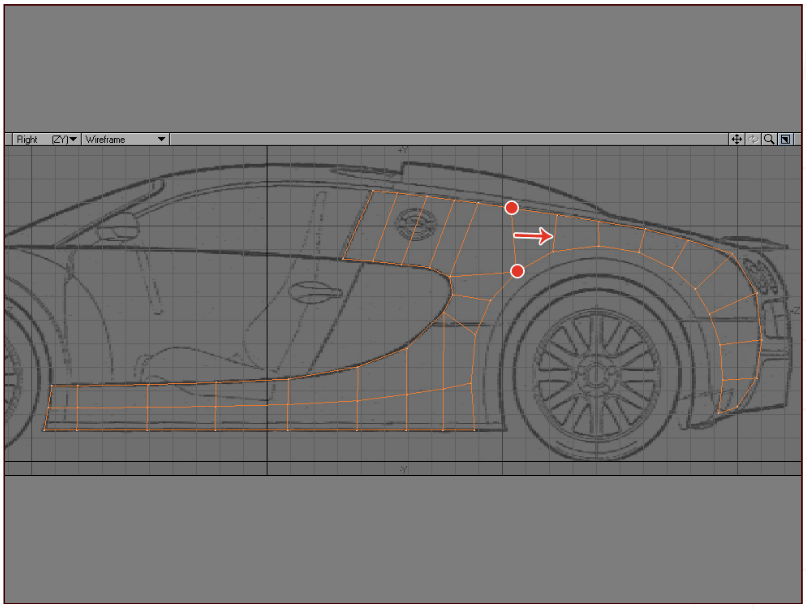
8. With the start polygon, we can use the “Extender” tool to expand our geometry. Select either the two right hand points (highlighted in the plate), or the right hand edge, and activate the extender tool. We can then simply drag the geometry to extend it and repeat the process, following the sweeping inset side panel profile around and along the side sill. Finally, to allow contouring of the side sill area later on, use the Bandsaw tool to create a 50/50 cut along the entire lower run of polygons (highlighted in the plate) (**Fig08**).

Fig 08



9. We now take the rear most pair of points and, using the extender tool as before, we extend the rear edge around the rear arch contour and down to the rear corner. You’ll also need to again use the drag tool to position the points to give the polygons a proportional scale around the curve of the arch (**Fig09**).

Fig 09



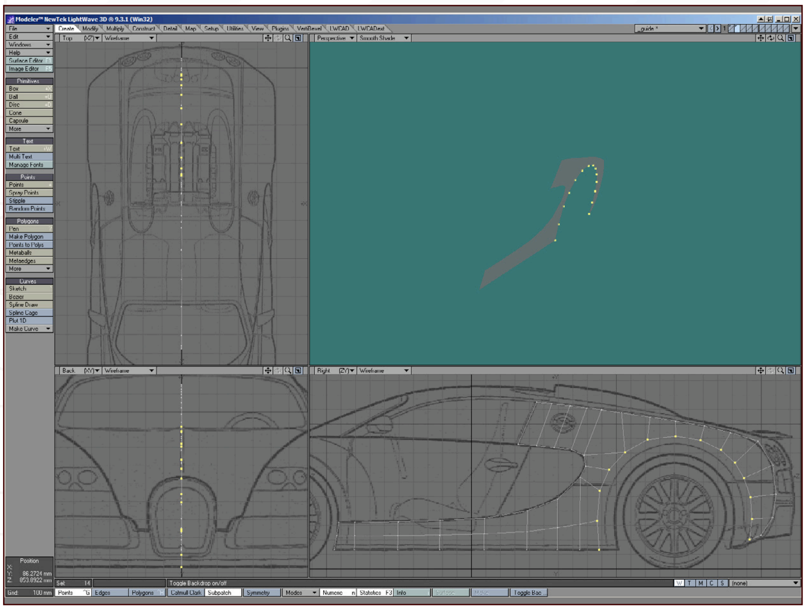


Fig 10

10. Okay, we're on our way now! We now have the rear quarter panel down in terms of the main shape. Our next job is to add the main out edge loops of wheel arch. Select all the points that currently form the wheel arch shape. It's important to create balanced loops on the inner and outer areas to distribute as evenly as possible the pull that is created by the subdivision (**Fig10**).

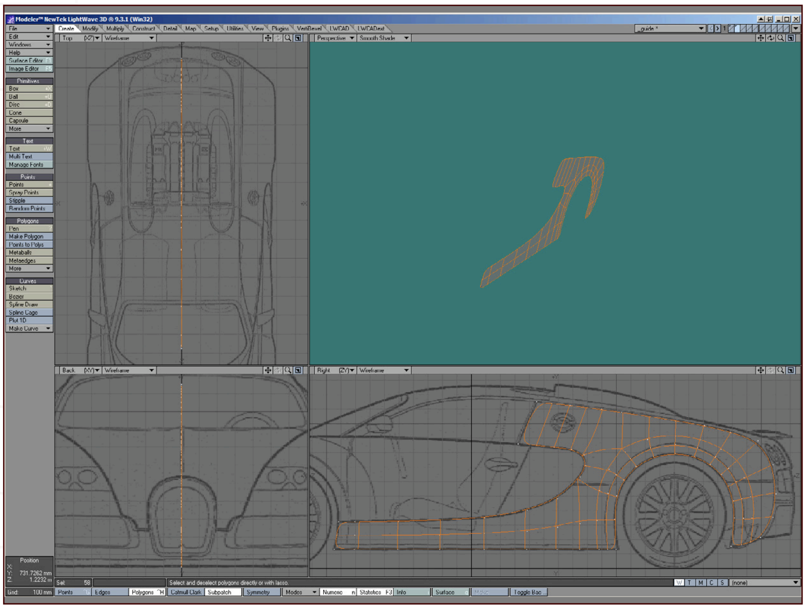


Fig 11

11. What we have done here is simple. With the points selected, we use the extender tool. The scale tool is then used to scale in the loop from the original outline. Repeat the process a second time and scale in again. Do make sure you have the mode set to "Centre on Mouse". By visually centralising your mouse pointer with the selection, you'll minimise any additional point moving required (**Fig11**).

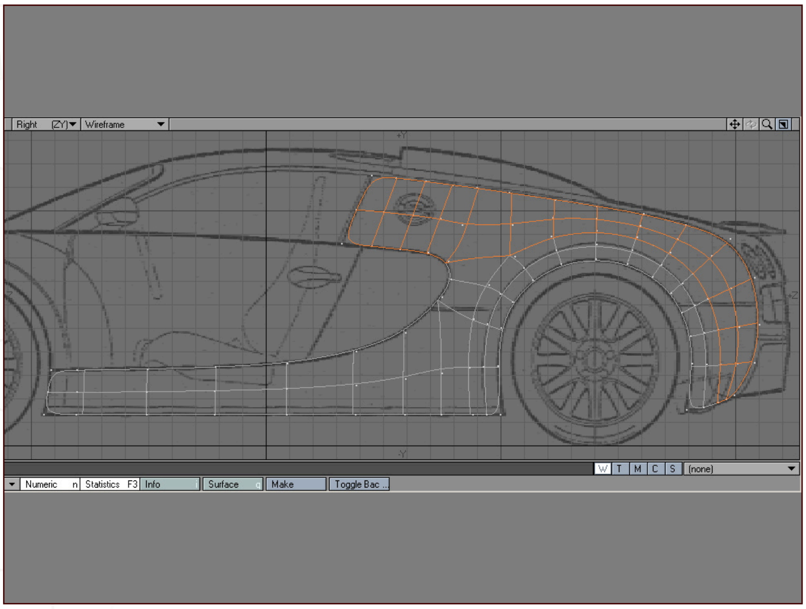


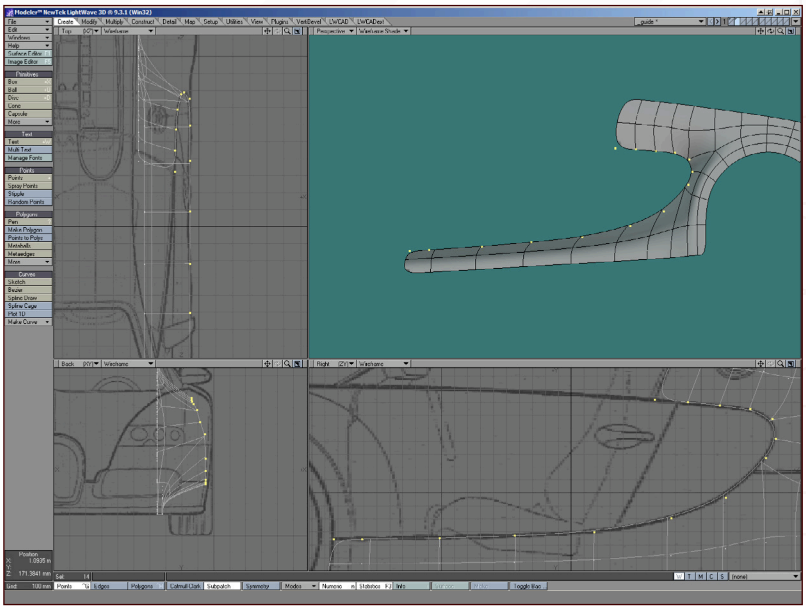
Fig 12

12. We need to split the top row of polygons in the same way as we did the bottom row earlier. This will help with forming the shape in 3D, as currently the geometry is flat in the X axis. As before, this is a simple 50/50 bandsaw cut (**Fig12**).

13. Now comes the scary bit! Well, only because for a while it is hard to tell that what you have is going to be a Veyron. But have faith, it will!

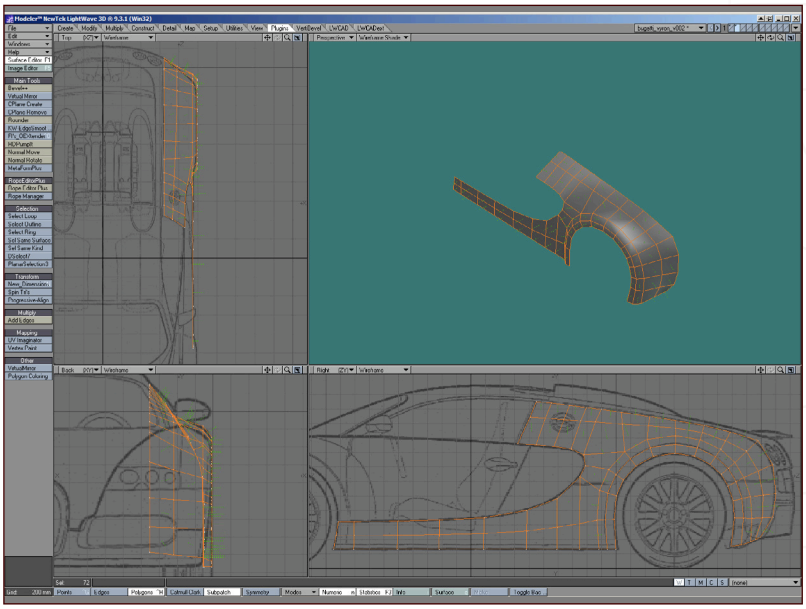
What we are basically doing now is working on specific identifiable bands of points, and using the remaining two viewport backdrops pull them out to form the three-dimensional shape of the rear quarter panel (**Fig13**).

Fig 13



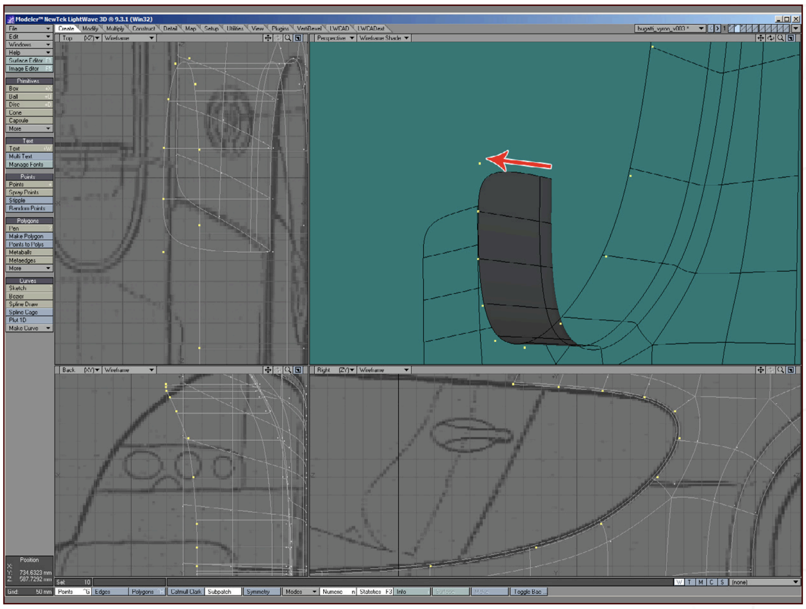
14. Here the main arc around the inset side panel is the first to be moved out into alignment. By trying to maintain work in the logical areas first, you should see obvious signs of the car taking shape, which in turn hopefully means less adjusting and re-adjusting of parts. A key part of this process is to keep checking across the surface of the geometry as you move the points out to make sure the flow across the surface is as smooth as possible. With this in mind, I have a modelling surface preset which I use when building models. A step worth taking now, though it can actually be done at any stage, is to add a return lip to the wheel arch. Select all the points around the wheel arch opening, and use the extender tool to create an extra set of polygons. Drag the points backward towards the centre line a small distance (**Fig14**).

Fig 14



15. Done! The rear quarter panel is well on its way now, but we need to add the depth to the area for the inset panel which follows on from behind the door. Select the row of points that form the entire arc that runs around the inset panel area, through to the front edge of the door. Use the extender tool again to create a row of polygons, and move the points inwards. Don't worry about how far too much just yet, as that will be dealt with later (**Fig15**).

Fig 15



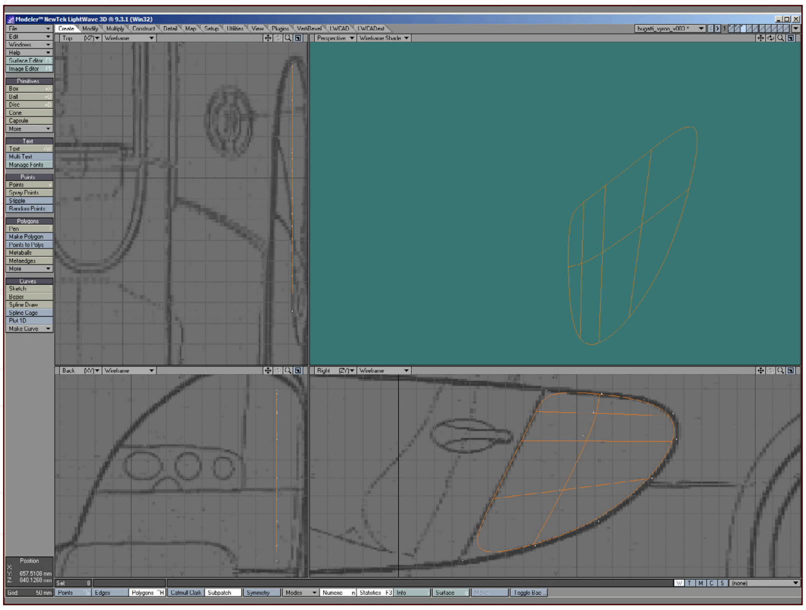


Fig 16

16. We now need to make the small inset panel itself. Simply create a polygon and use the knife or bandsaw tool to create a vertical split in the polygon, and then drag the points to fit the outline of the panel on the blueprint. It obviously looks rounded and ill-defined at the moment, but we'll bring the door in next to refine the shape as though they are a single unit (**Fig16**).

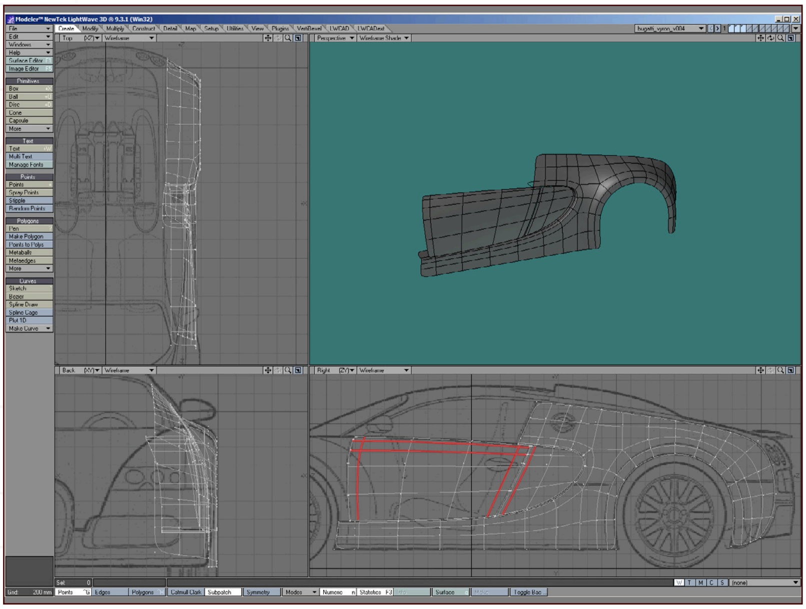


Fig 17

17. Okay, we can actually see some distinct progress towards a Veyron now. Here we have the door, inset panel, and rear quarter panel in place together. Highlighted are the additional cuts added to the door and inset panels. These are added for two reasons (**Fig17**).

First, the door needs its profile to match the front edge of the inset panel, because both panels will need a curvature added that runs from top to bottom.

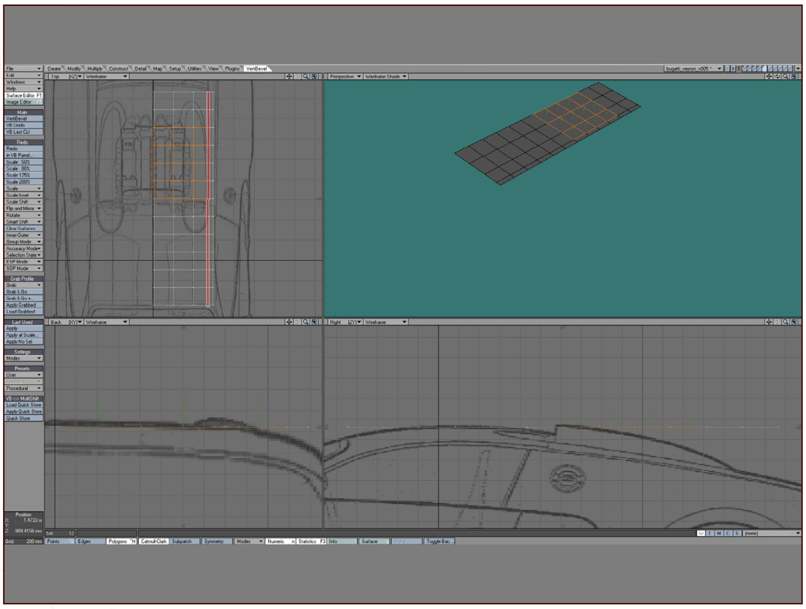


Fig 18

18. Secondly, the door needs the corners controlled so as not to leave them too rounded compared to the real car (**Fig18**).

The next phase is the centre roof panel, which effectively runs from the back all the way to the bottom of the windscreen. This starts life as a simple flat, square polygon/box. Use the box tool to create the polygon three units wide, and twelve units long. Using the top view blueprint, make the box so that it runs from the top edge of the windscreen to the front corner of the rear wing panel. The outermost row of polygons will need a cut run along them to control the edge, and form the curve of the pillar which runs down the side of the windscreen. Use the bandsaw

tool with a 75/25 split, ensuring the 25% section is the outside portion of the resulting double row of polygons.

You'll notice a block of polygons highlighted, three wide and four long. These will be deleted to form the opening where that engine is visible. We'll get to that a little later, though!

19. For now, we need to turn our efforts to making the roof match the prints in more than one axis! So here we are now using the drag tool to pull the boundary points in to place. My usual method is to get the general curve of the roof in the front view aligned first, before switching attention to the side view to align the profile along the length of the roof. You'll normally find that the curvature isn't uniform along the whole roof, but that will be easier to see once the main shape is aligned. We should also take this opportunity to add a tighter row of points along the front windscreen line. You can use the knife too, or bandsaw for this (**Fig19**).

20. The roof shape is pretty well there, save for any tweaking, so the next thing is to get the edge of the engine bay opening defined. As with the wheel arch earlier, it's beneficial to create an edge loop around the outside to help balance the weighting of the subdivision. So with the outline of points selected, use the extender tool to create a new set of polygons and scale it inwards by a uniform amount all round. That will give us a better controlled outline for the engine bay. Often, I'll quickly mirror the geometry to give a full car width to look at, which makes it easier to see any adjustments you may need to make, and just gives you a better idea of how far in you are getting (**Fig20**).

A good tip on the subject of mirroring is the Volume tool. Many people never use, or even are unaware of what the volume tool (Ctrl + J) does. It essentially draws a rectangular selection lasso in the current viewport, and via the stats panel allows you to select all points/

Fig 19

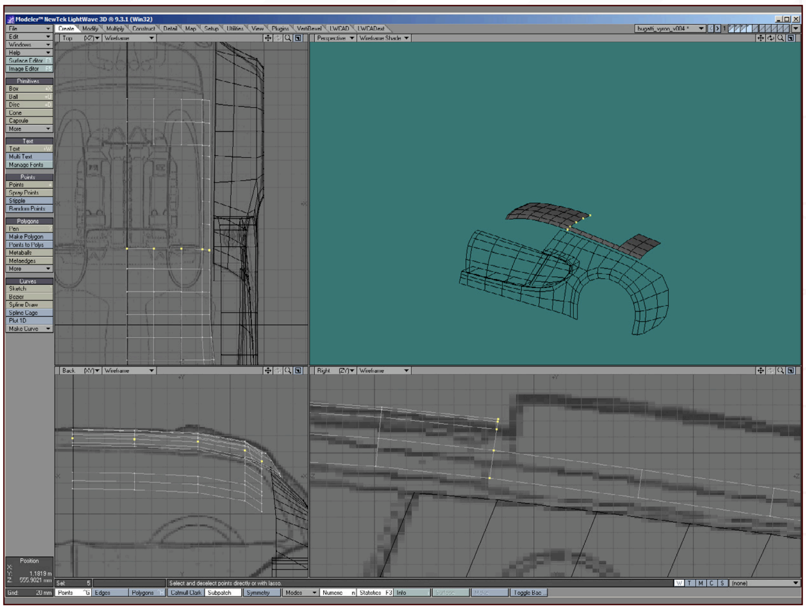


Fig 20

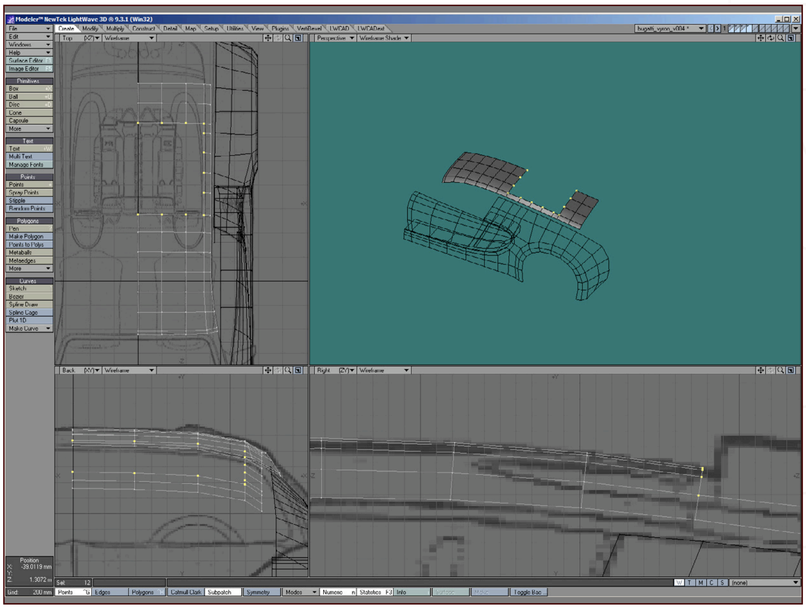
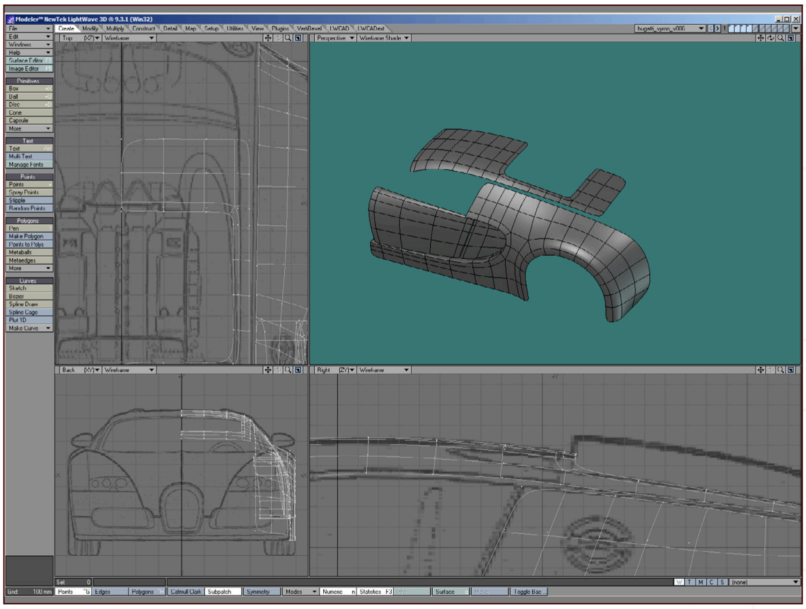


Fig 21



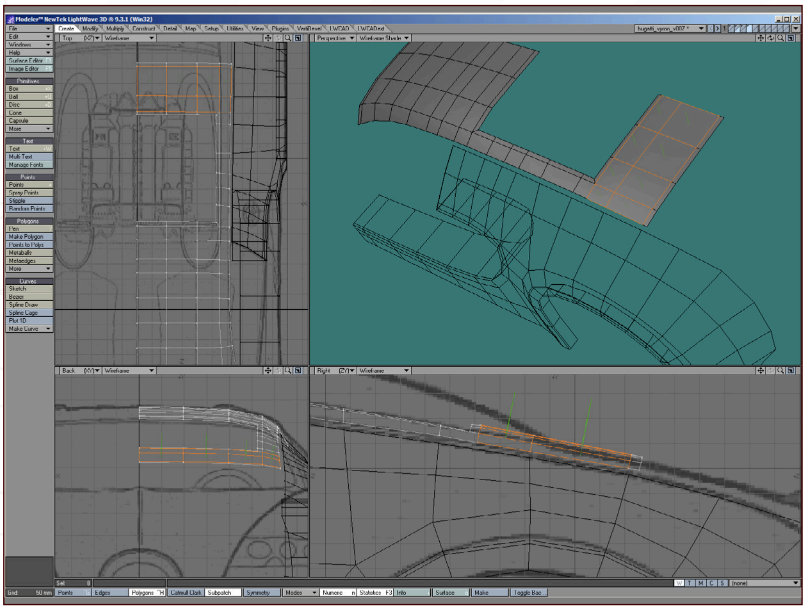


Fig 22

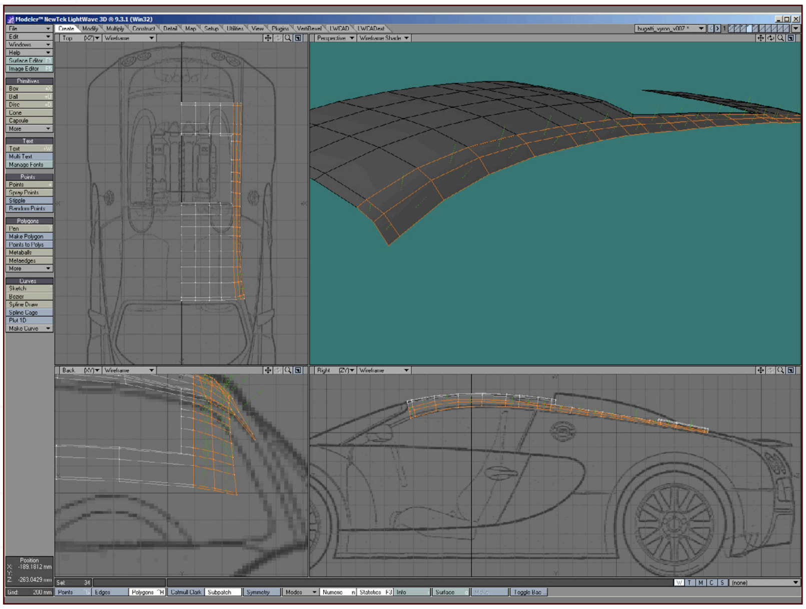


Fig 23

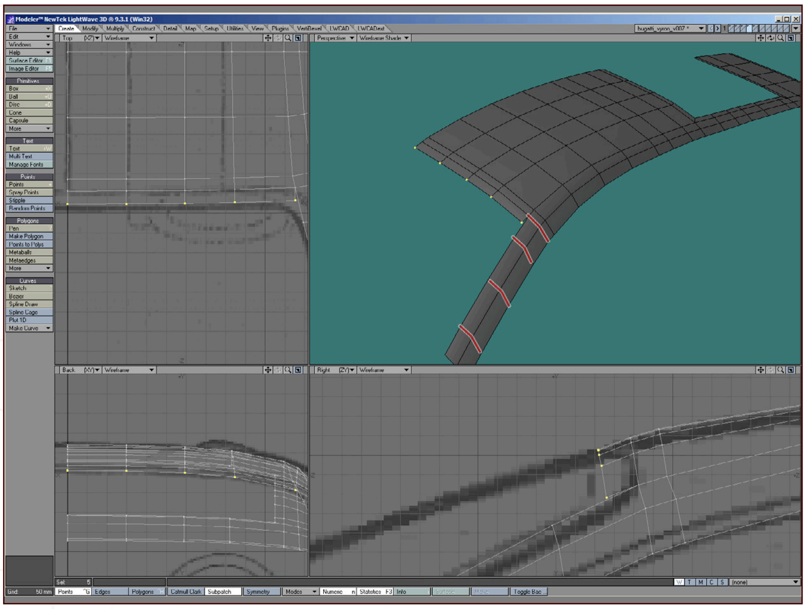


Fig 24

polygons inside/outside the lasso. It's a very quick and easy way to select half of a model for deleting after it has been mirrored. It will become more apparent later on in the tutorial when the body shell has the ridged contours along the centre line.

21. Okay, now we have the engine bay opening and we have aligned the panels we have made so far to our blueprints. We should be left looking at something not totally dissimilar to this (**Fig21**). It's relatively early days, but the car is quite visibly taking shape now.

You should also be able to see that with the polygonal arrangement we used for building the centre roof section, we have a good centre line setup for the basis of the concave inlet areas for the intakes. These will be added later. (**Fig21**)

22. In order to make it easier to get the roof and quarter panels to match up, I next use the knife tool to create rows which correspond to the rear quarter panels. You can then band-glue together the rows of polygons that don't any longer align to the geometry of the quarter panels. We can also use this stage to fine tune the shape of the roof in the side view (**Fig22**).

23. We are now reaching the stage of building in the area around the windscreen.

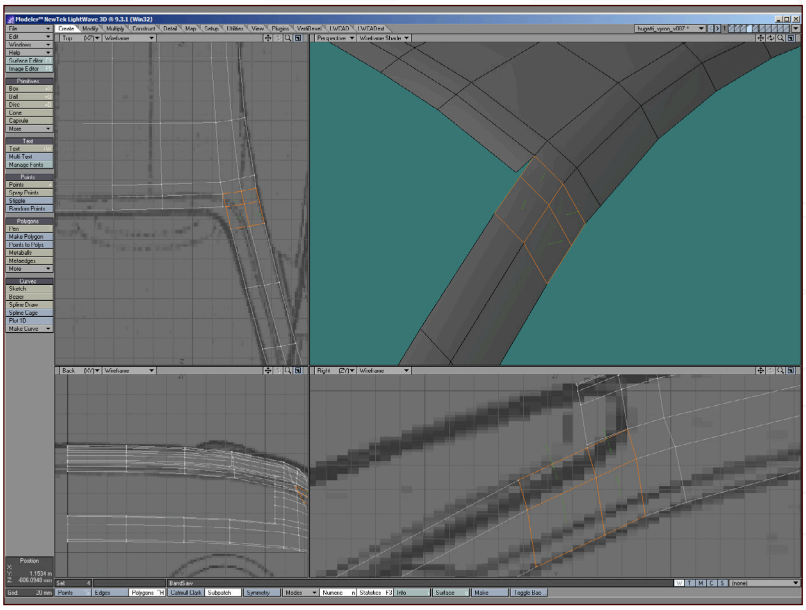
The first stage is to run a 50/50 bandsaw cut along the outer row of polygons, which will provide us with the defining polygons for the windscreen pillars. At the same time, use the drag tool to move the polygons running down to the top corner of the windscreen outward and downward using the top and side views. This is in preparation for extending these down to form the pillars (**Fig23**).

24. Selecting the three points that form the top part of what will be the pillars, use the extender tool, and using the blueprints as the guide extend the screen pillar down in four sections. We also at this stage should control

the top edge of the screen, as there is a gentle curve down in to the top edge of the screen. To achieve this, select the fine points forming the top edge of the screen and use the extender tool to add a thinner row of polygons. As it stands, we have nowhere useful to attach the loose end (**Fig24**).

25. We'll remedy this by using the knife tool to create a joining seam. Select the top row of three polygons of the newly formed screen pillar, and using the knife tool cut a line in the polygons in line with the extended edge we created previously (**Fig25**).

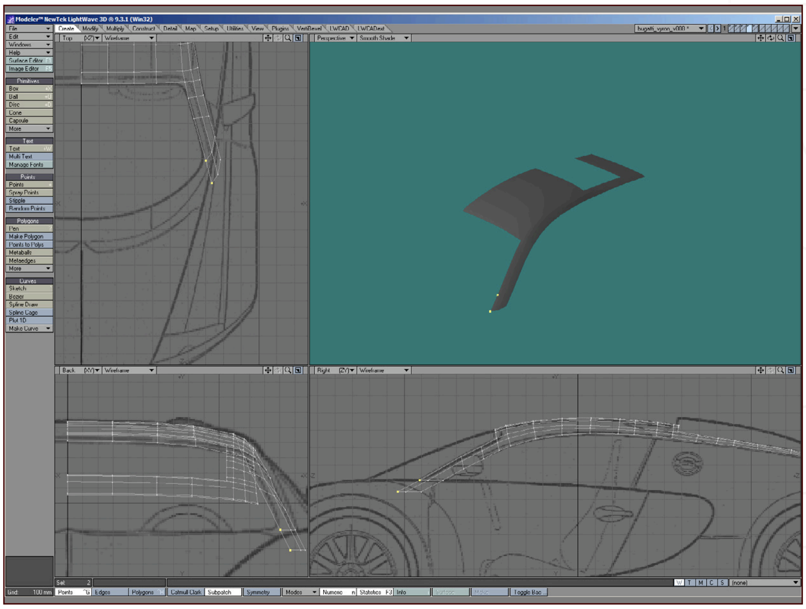
Fig 25



In the side view, adjust the height of the loose front edge so that it matches the new cut we just added, and weld the gap shut. That now provides the main framework for the windscreen to be added in a later instalment of this series.

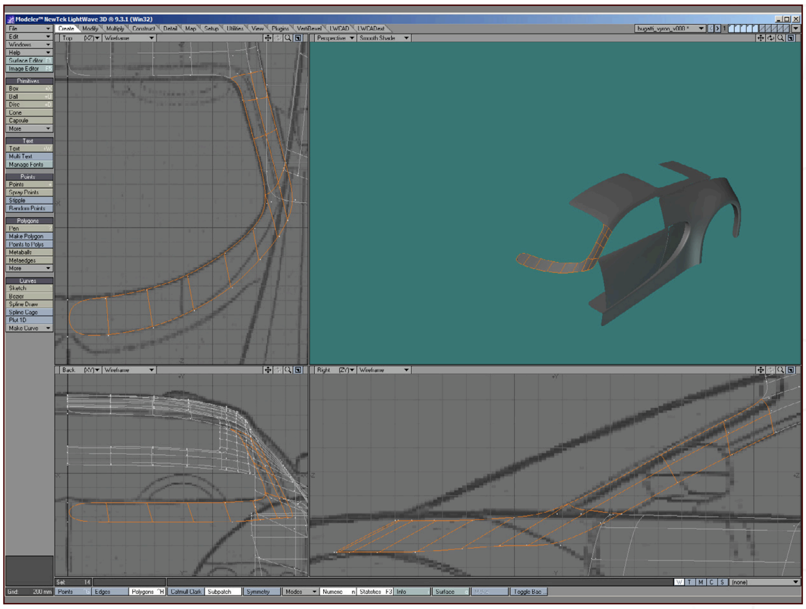
26. So that's the top edge of the windscreen sorted for this stage, but now we need to address the bottom and get that in position. The process for this is just as before, selecting the inside two points of the bottom section of the pillar and extending them across (**Fig26**).

Fig 26



27. Using the extender tool, extend the two points across in six segments following the curve of the screen in the top viewport. Select all your geometry and switch to SubD mode to check your alignments to the prints, and if required use the drag tool to shift any points, as required, to ensure your match (**Fig27**).

Fig 27



The next stage is the front wings, and in order to save ourselves some time, and owing to the fortunate design of the Veyron, we can lift the main outer section of the rear arch and use it as the basis of the front wheel arch and subsequent wing.

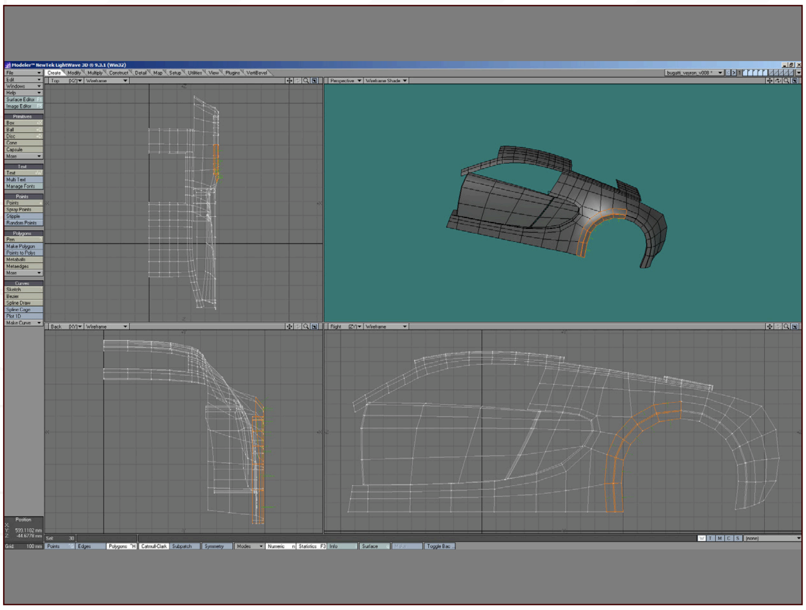


Fig 28

28. Select the three rows of polygons around the wheel arch, including the inner return lip. We only want the front half effectively, as the rear half of the arch is a different shape and doesn't extend down quite as far. So, with the polygons selected, hit copy and paste into a new layer (**Fig28**).

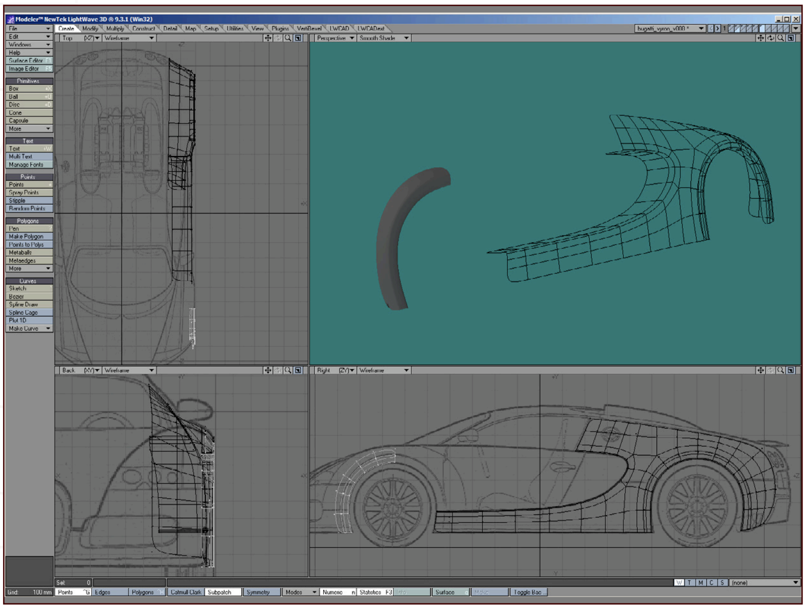


Fig 29

29. Move the geometry forward so it overlays the wheel arch in your blueprint. This gives us half the arch and, save for a little adjustment, is pretty much perfect. Use the mirror tool and mirror the front half of the arch in the Z axis, then adjust the mirror position until the duplicate half lines up correctly with the rear half of the arch (**Fig29**).

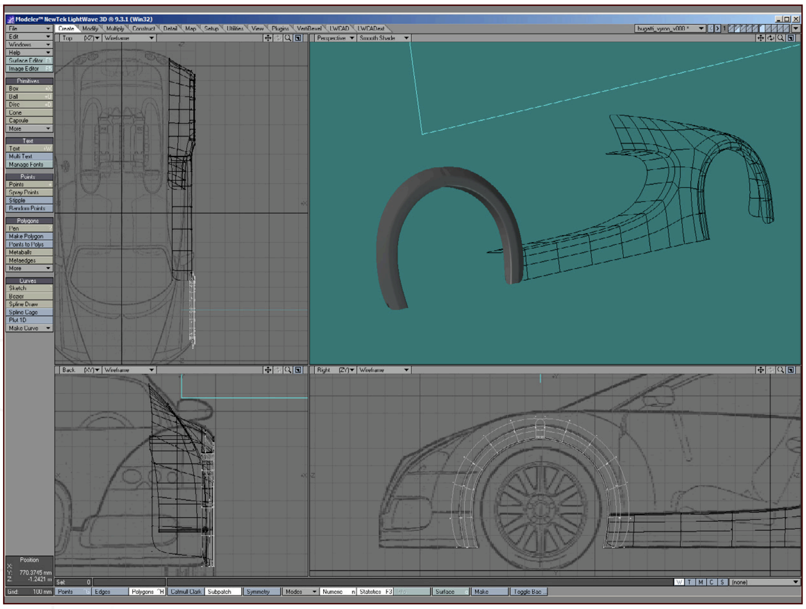


Fig 30

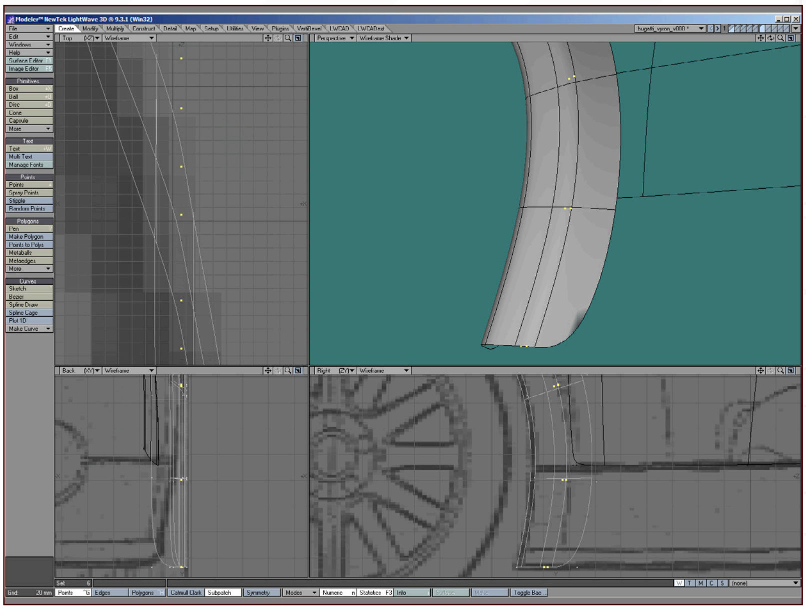
30. You will notice we have a small overlapping area of geometry. To fix this, I use a plug-in called New Dimensions 2, but I think Aligner serves a similar purpose. Essentially, what we need to do is select the points at the ends of the overlap for each half of the arch, and then align them in the Z axis. Another – very quick – method without using plug-ins, is as follows; with the points selected, use the scale tool with the mode set to "Selection", and then, holding down Control to lock the tool to the first axis of adjustment, scale in the Z axis to zero (**Fig30**).

Now merge points, and the points along the seam should be merged. Press tab to switch to SubD to ensure all the points have welded.

31. Okay, so we have the basic defining part of the front wheel arch in place, but there is a difference we need to account for. The sharp defining edge around the arch at the rear does not extend as far around the front wheel arch.

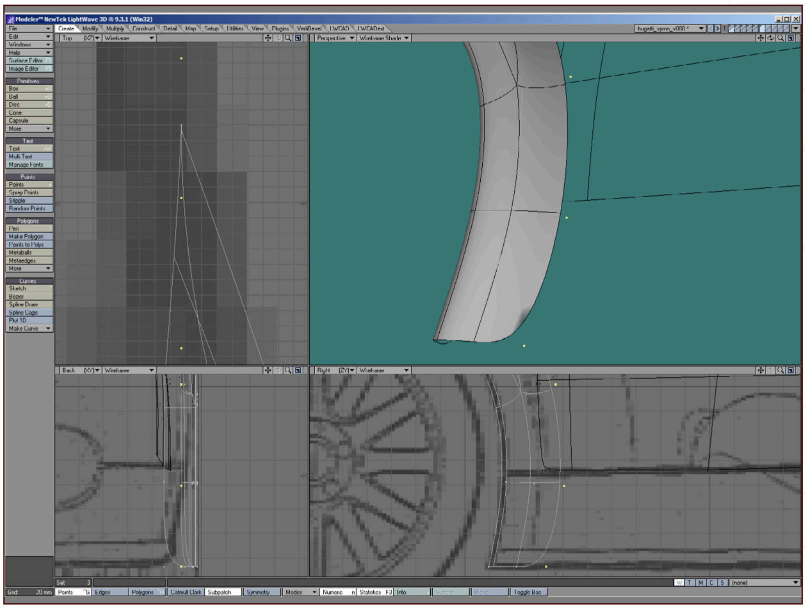
The solution to this is to select the last three sets of points which form the tight central line of polygons for the wheel arch (**Fig31**).

Fig 31



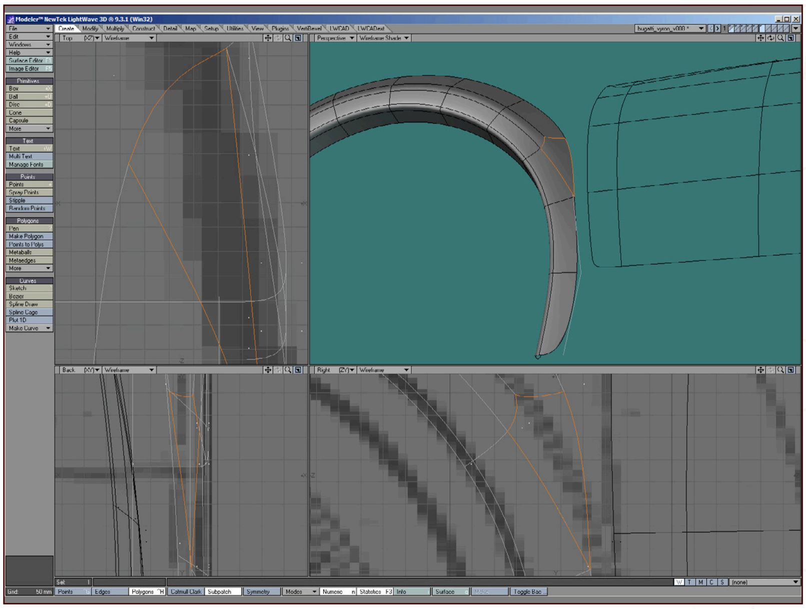
32. Weld each pair of points together in turn, and you'll see the defining line of the arch is smoothed out. This forms the first step of the smoothing away of the contour line. The problem we have now is the tri left behind. Because it's on a curved contour, it will create a potentially problematic area of pinching (**Fig32**).

Fig 32



33. To remedy this, we are going to repeat the same procedure we just carried out, so select the bottom three pairs of points in turn and weld them together. You should end up with the geometry looking like this (**Fig33**).

Fig 33



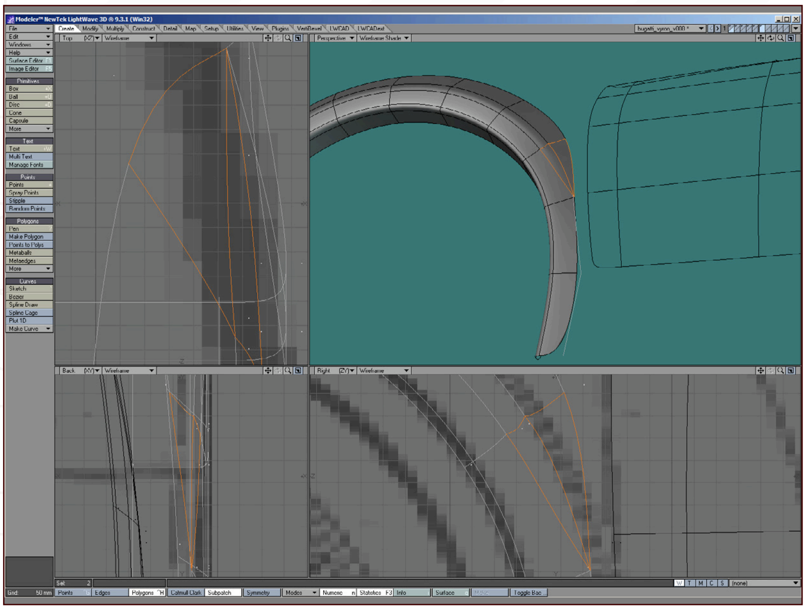


Fig 34

34. You'll notice where we had the tri before, we now have two side by side. Select and merge these two polygons and we'll now have a quad which will subdivide much better than before (**Fig34**).

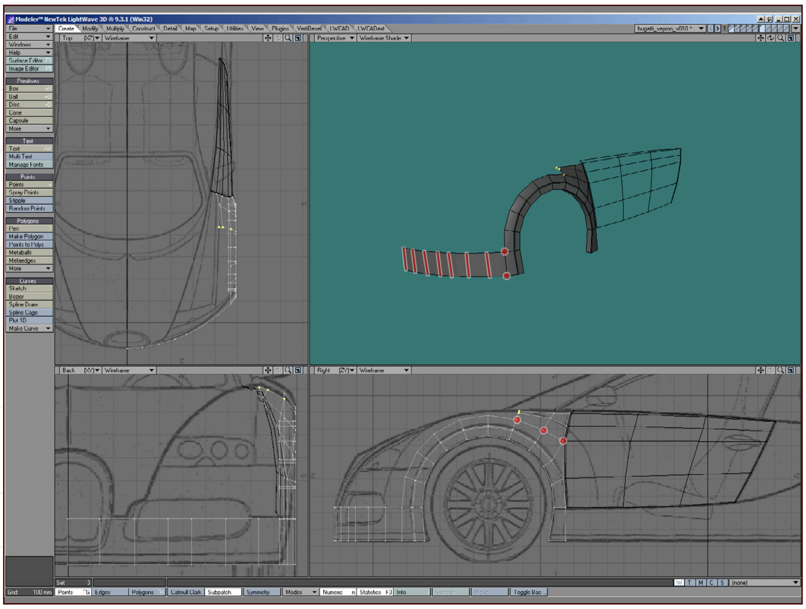


Fig 35

35. To form the lower front part of the car, we select the two points at the bottom front of the wheel arch, and again with the extender tool we extend the front across and round. Use enough segments to define the curve smoothly, but not too many! Also marked up here are the top rear three points. The rear most of the three has now been moved up so as to match the incoming position of the door topology. The extender tool has also been used to extend the edge up in two sections, beginning the formation of the top edge profile which runs the length of the wing, and down toward the headlight (**Fig35**).

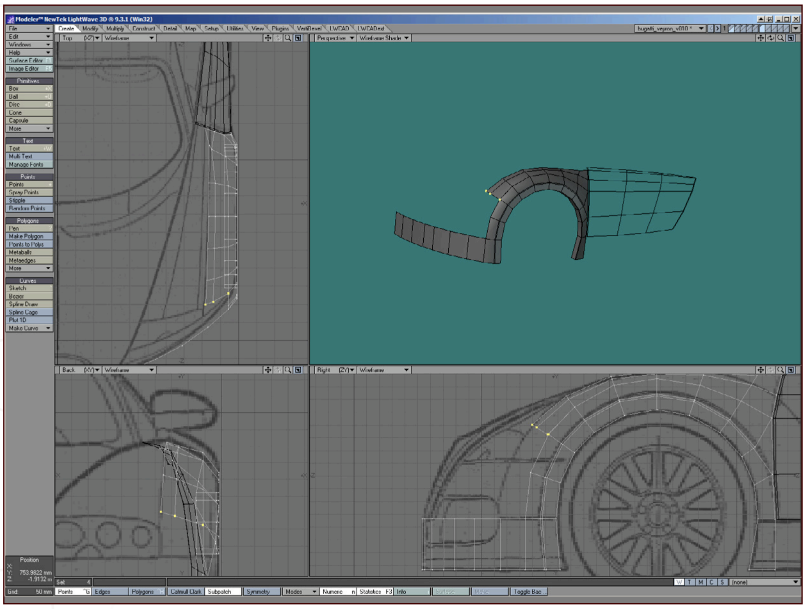
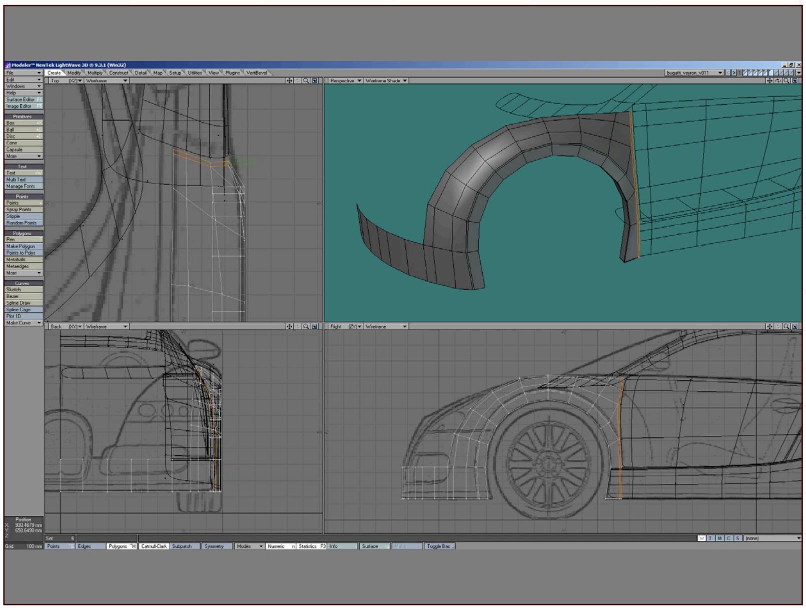


Fig 36

36. We've now taken the front edge of our new wing top section, and extended it along and over the top of the wheel arch, using the rotate tool as we go to keep the poly flow aligned with the polygons coming up from the wheel arch (**Fig36**).

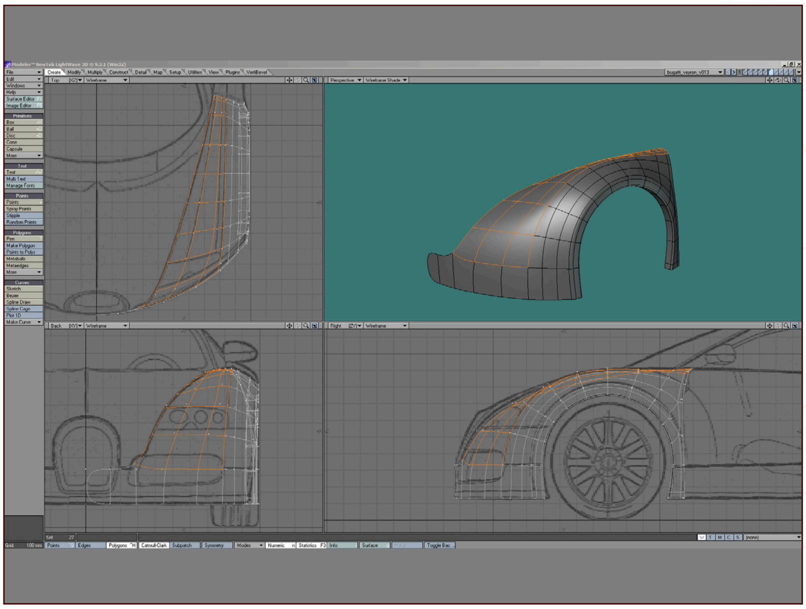
37. The main wing edge is now extended all the way over the wheel arch, and the points welded to the front airdam surface; however, we will have some issues with the rear edge of the front wing. To facilitate adding return edges to the wing we need a good clean edge, so we need to select all the points down the rear edge and move them towards the front of the car a little. With them still selected, use the extender tool to create a fresh band of polygons to meet the front edge of the door (**Fig37**).

Fig 37



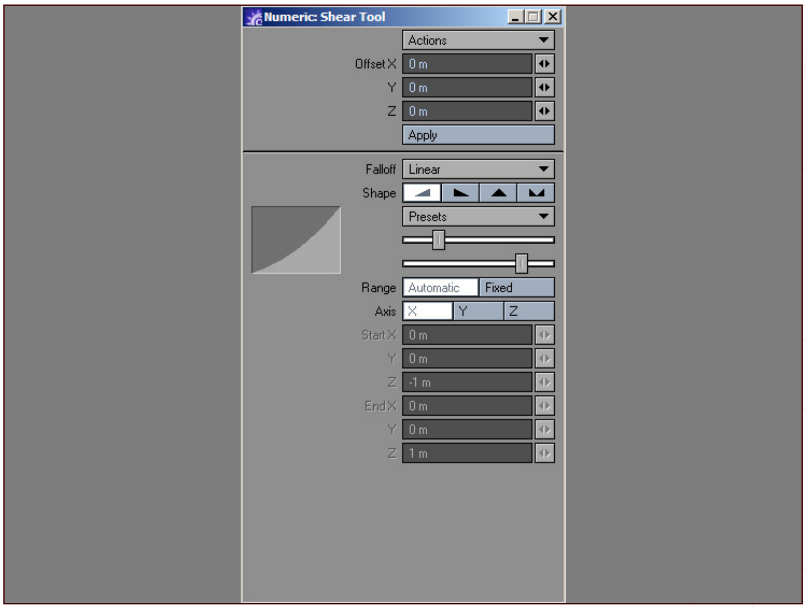
38. The wing is shaping up now, so let's get the main bulk in there now. Select the points along the length of the open top seam and use the extender tool to extend a band of polygons inwards (**Fig38**).

Fig 38



39. My preferred method is to extend a short distance to form the top corner of the wing next to the windscreen, and then use the shear tool to adjust the line of points afterwards. The shear tool is a very powerful one, and it allows you to skew a selection of points/polygons/ edges with adjustable curvature characteristics. I find it always knows which end I need to keep anchored, and works the wrong way around! Along with the extender tool, shear is probably one of the tools I use the most. If you have used the taper tool, you should be right at home with it, as it is pretty much a one sided taper (**Fig39**).

Fig 39



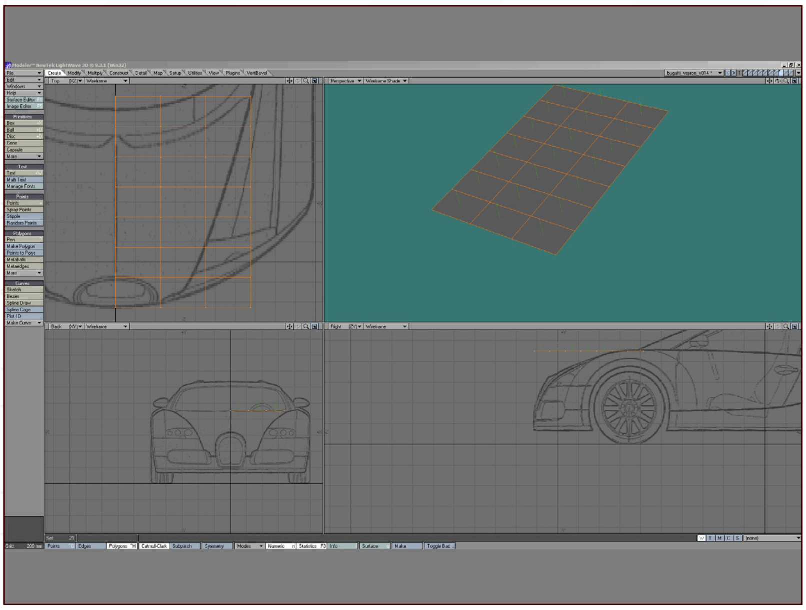


Fig 40

40. Now that the main shape of the wing is in place, we need to get the bonnet/hood done. The starting point is a flat box three units wide and seven long. Size should be enough to cover the area of the bonnet in the top view (**Fig40**).

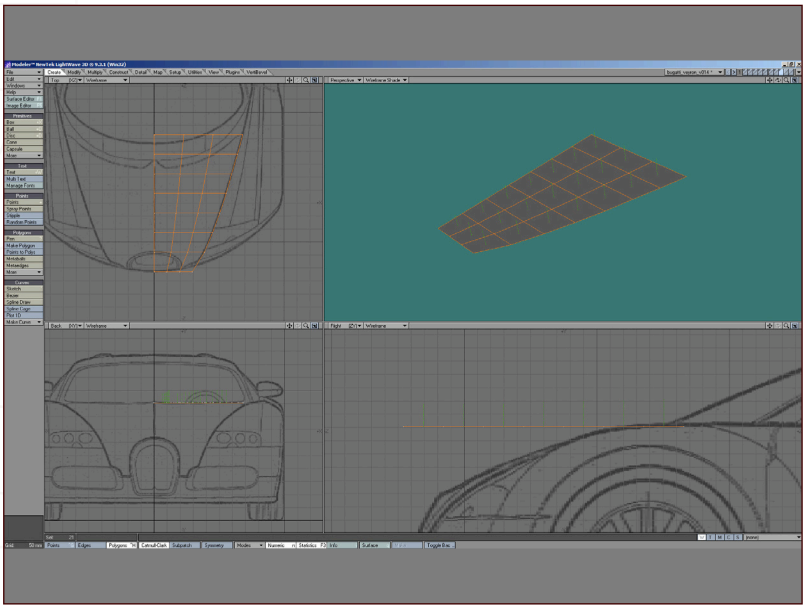


Fig 41

41. Using the scale tool in mouse centred mode, select and scale each band of points to match the tapered shape of the Veyron's bonnet. There is an opening required for the distinctive grill opening, but we will add that in once the main shape of the bonnet is in place (**Fig41**).

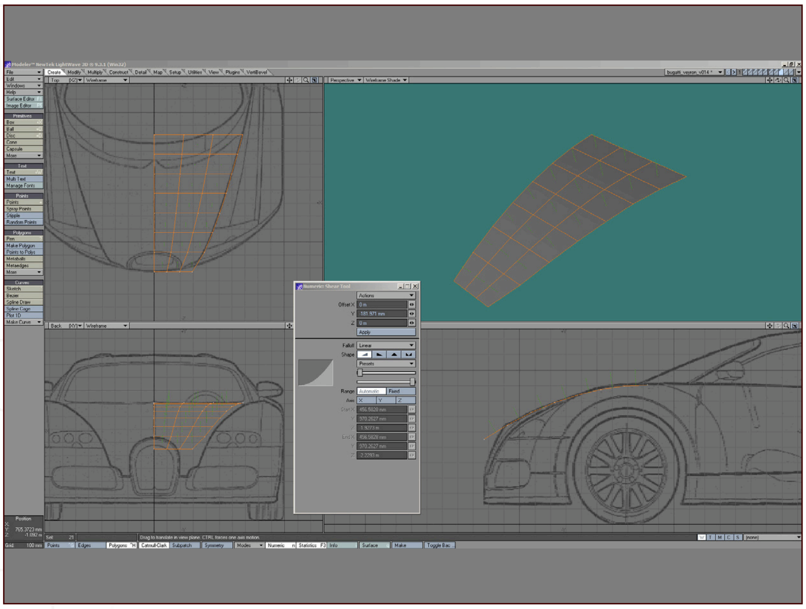
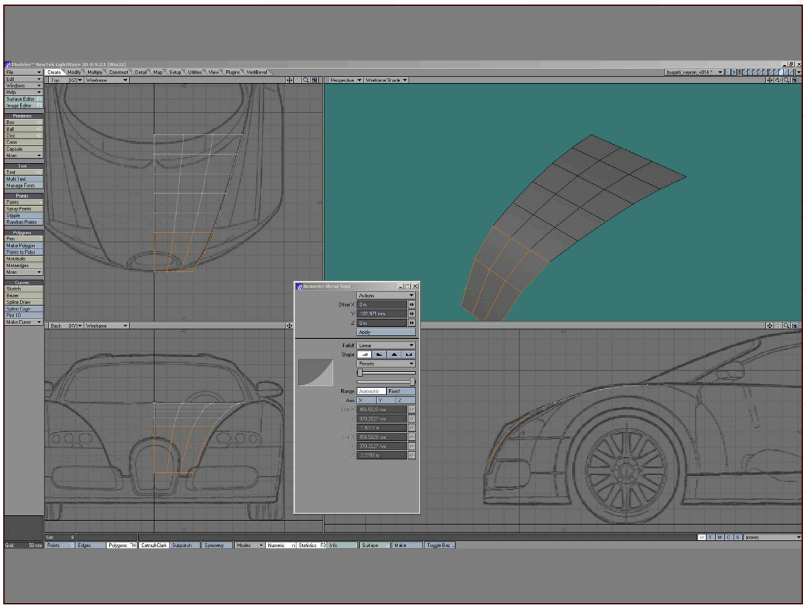


Fig 42

42. The shear tool is now required. We're using the maximum curvature possible to bend the bonnet down toward the front. You'll notice that having gone so far, the bonnet will not be able to match the template. For this, we will need a second application of the shear tool to a smaller selection of polygons (**Fig42**).

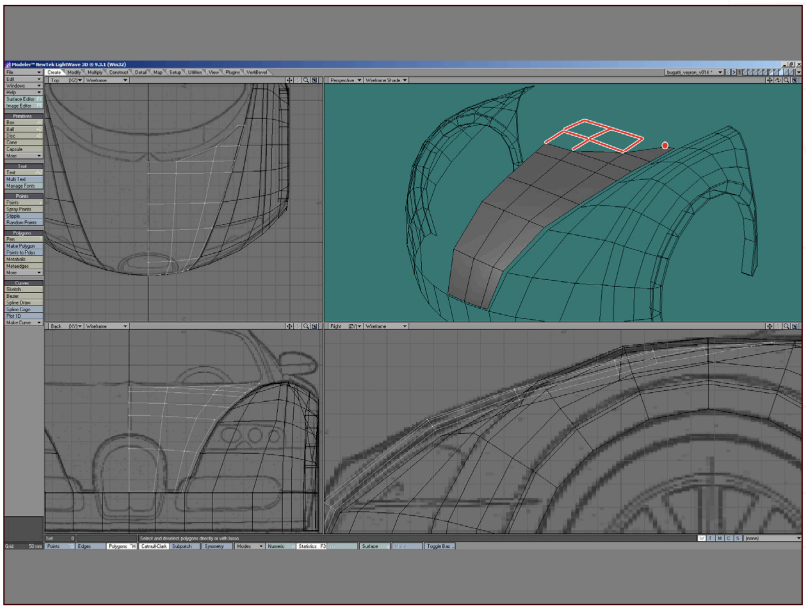
43. With the end two rows of polygons selected, use the shear tool again to bend the last section down to match the profile of the blueprint. The next step is a slightly more fiddly one and will take some tweaking and adjusting and undoing to get it to look how you want (**Fig43**).

Fig 43



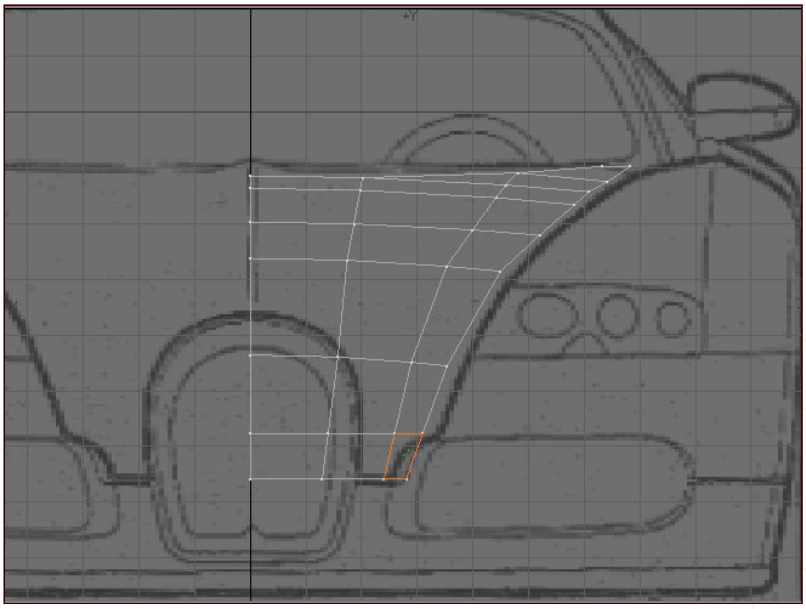
44. First, I have indicated on the plate in red where polygons at the top have been removed. This is in order to get the main curve in the top of the bonnet. Although the top corner looks like a tri, I have marked the point to show that we have simply moved the corner of that polygon over to create a pointed corner for the bonnet. The final part of this step is to use the shear tool and bring the horizontal bands of the bonnet down towards the outer edge, but crucially also into alignment with the topology of the wing. This will allow us to match the adjoining curves with less trouble (**Fig44**).

Fig 44



45. The final job is to use the knife or bandsaw tools to add a cut across the last section of the bonnet, which will allow us to create the clipped corner. Delete the polygon from the corner (**Fig45**).

Fig 45



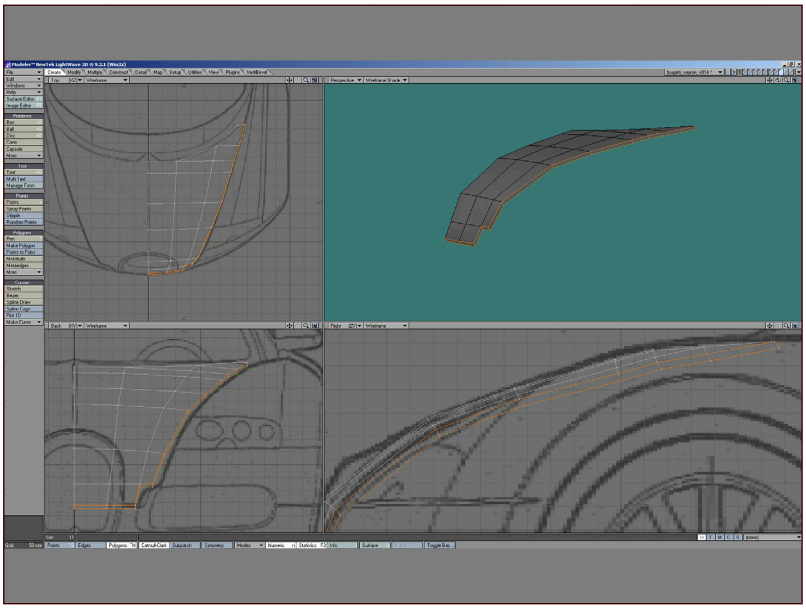


Fig 46

46. Selecting all the perimeter points, use the extender tool and pull down an extra row of polygons. These will form the basis of the curved and rounded edge (**Fig46**).

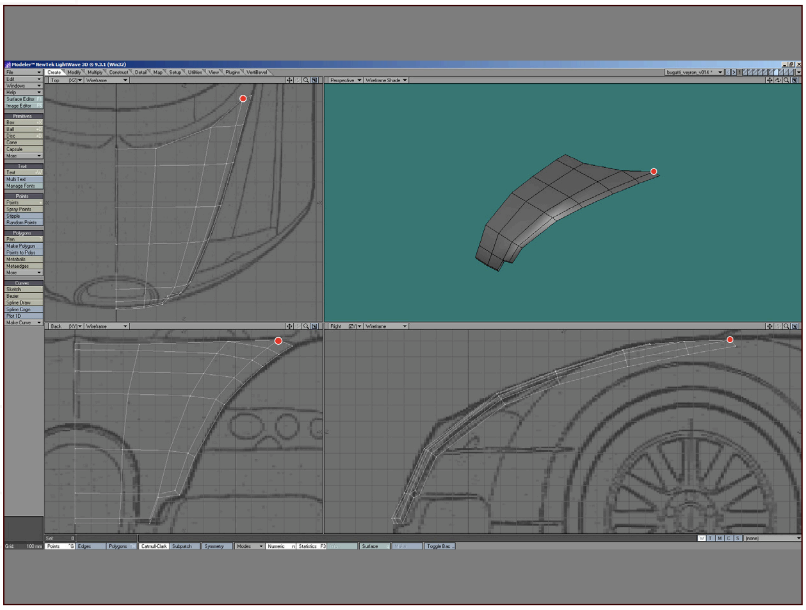


Fig 47

47. Indicated here is a point that has been welded from two, so as to provide a more pleasing corner. The point positions for the rounded edge have been tweaked and moved, best achieved by switching back and forth between polygon and subdivision modes (**Fig47**).

For the time being, our basic bonnet is done. We still have the radiator grill to add, but that's in another part of this series. Having distracted ourselves with the basic start for the bonnet/hood, lets get the last remaining task for the main body shell shape done.

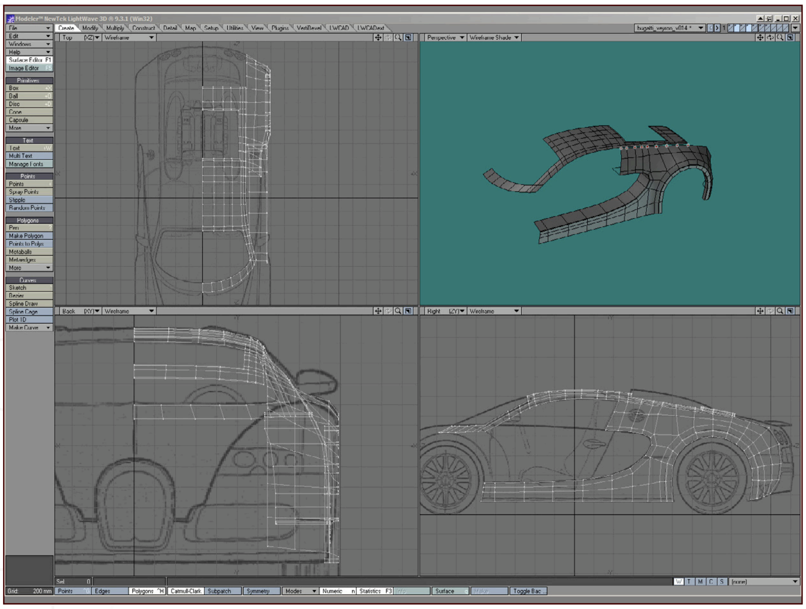


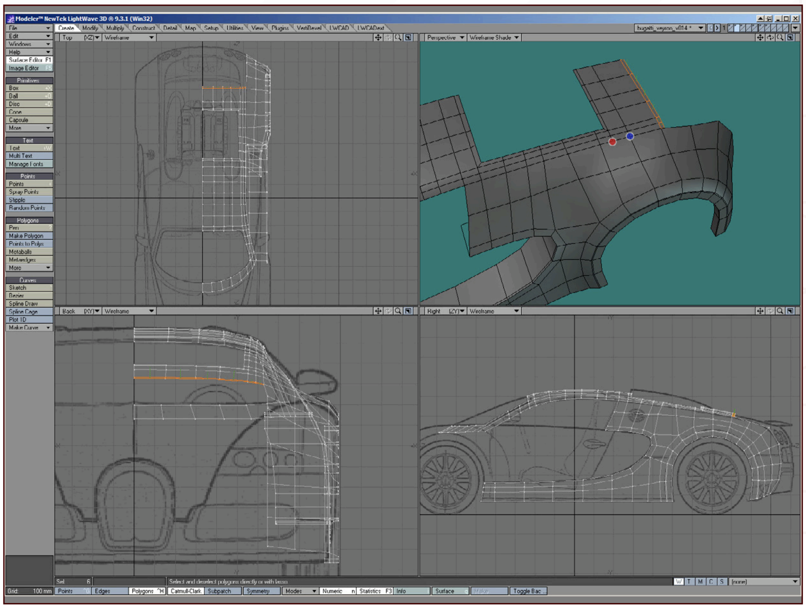
Fig 48

48. At this stage, the centre roof section and the rear quarter panels have been in separate layers, just for the ease of working. We now need to join these parts together. Select both layers, then copy and paste into a new layer.

The row of points highlighted in the plate need to be welded to their direct counter parts in the roof section. You should notice that you have two points that have nowhere to be welded to once you have done this. Don't worry, we are about to tidy those up! (**Fig48**)

49. First, the last row of polygons of the roof section (shown highlighted) need to be deleted. We now need to weld the loose point to the one next in line behind it (shown as the red to be welded to the blue in the plate) (**Fig49**).

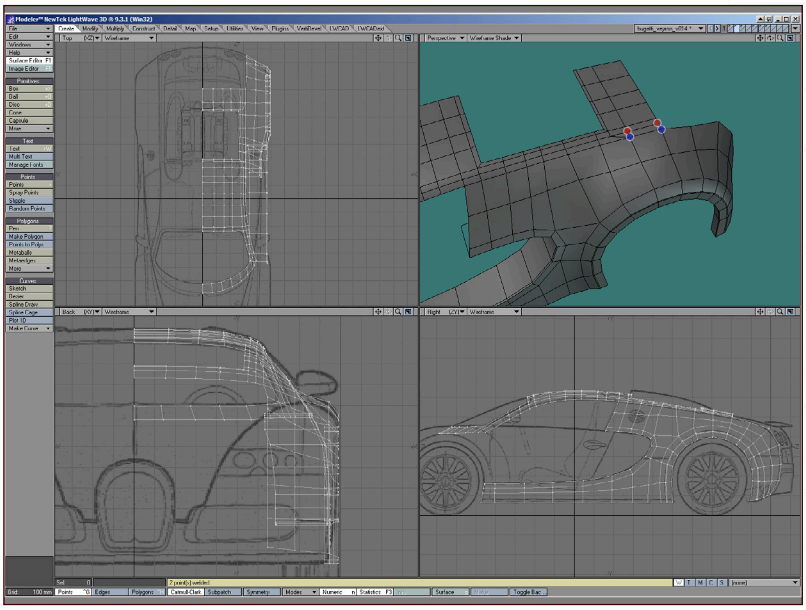
Fig 49



50. Just to finish up the work in the last step, the plate shows two pairs of points (a red and blue to each pair). Each red marked point needs welding to its paired blue point (**Fig50**).

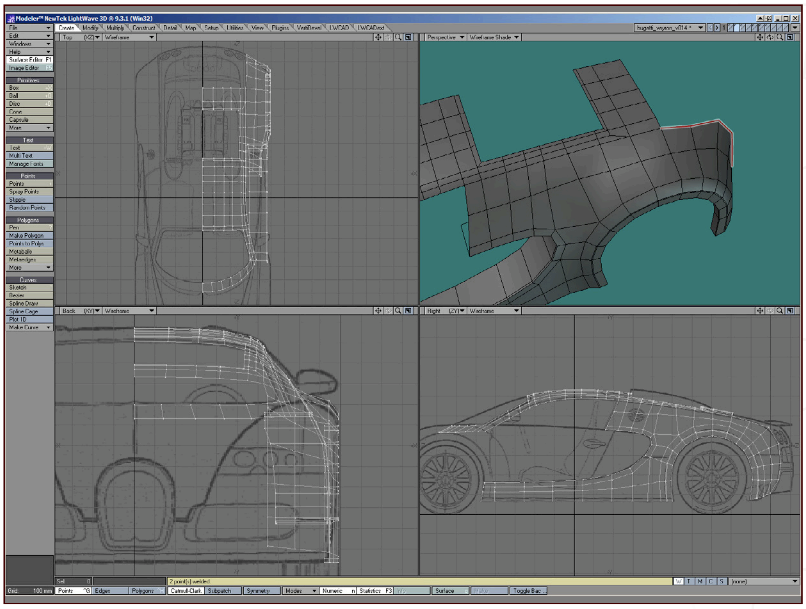
This slightly simplifies the number of polygons being used to create the curve profile for the back of the Veyron.

Fig 50



51. In the following two plates (**Fig51** and **Fig52**), you can see the inner rear edge highlighted, as this needs to be a good curve match to the background print (**Fig51**).

Fig 51



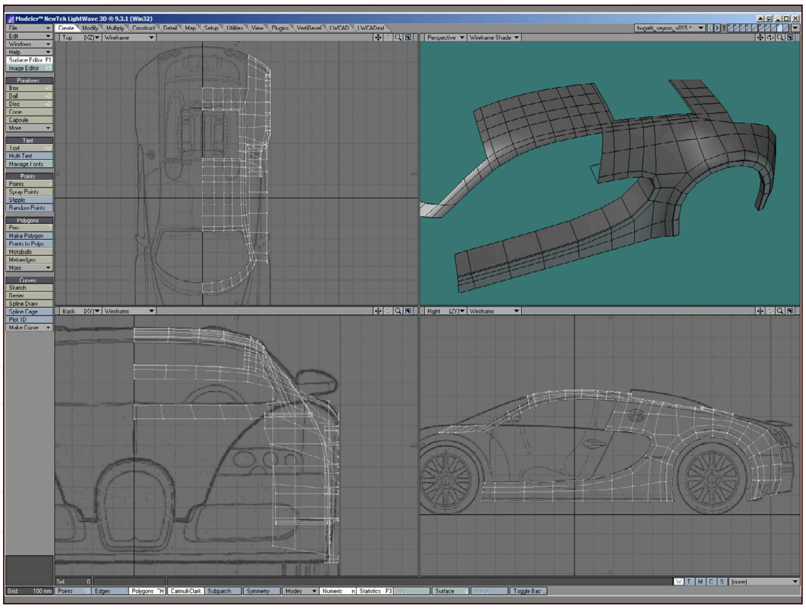


Fig 52

52. The right-hand plate shows the after version – a smoother curve (**Fig52**).

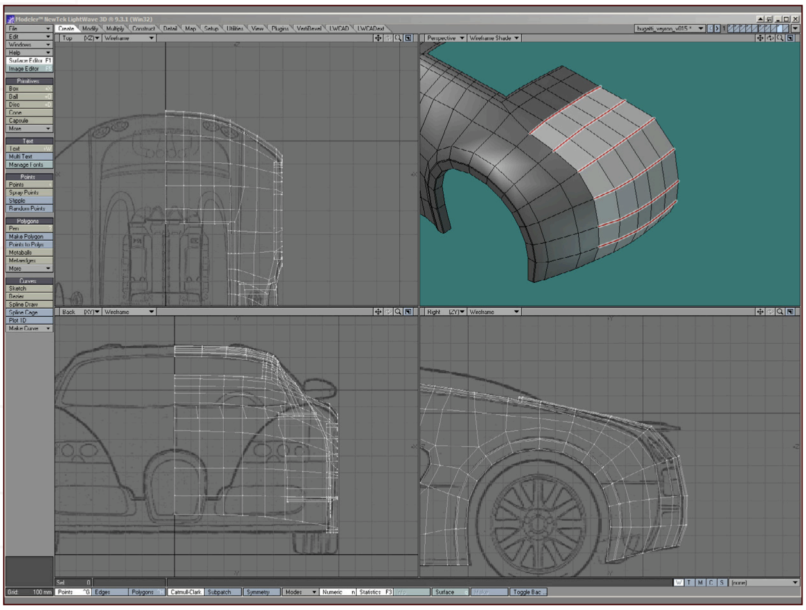


Fig 53

53. The last step for the main body shell is to fill in the rear, and we do this using the extender tool. Select the first highlighted edge and, using the extender tool, move along to the next polygon row and use extender again to repeat the process. Using a combination of the perspective viewport and the side view blueprint, adjust the points to attain as smooth a flow of polygons as possible (**Fig53**).

All being well, at the end of that, assign the default shader/surface to all your polygons and then mirror the model to give you both halves of the car together. Weld points and hit Tab. If you see any torn seams along the centre line, select all points that should be in the dead centre and hit Ctrl + V. Set the X value to zero, and OK it. Weld points again, and any previously unwelded points should be picked up this time. Now in theory, you should have something that looks remarkably similar to this: **Fig54.**

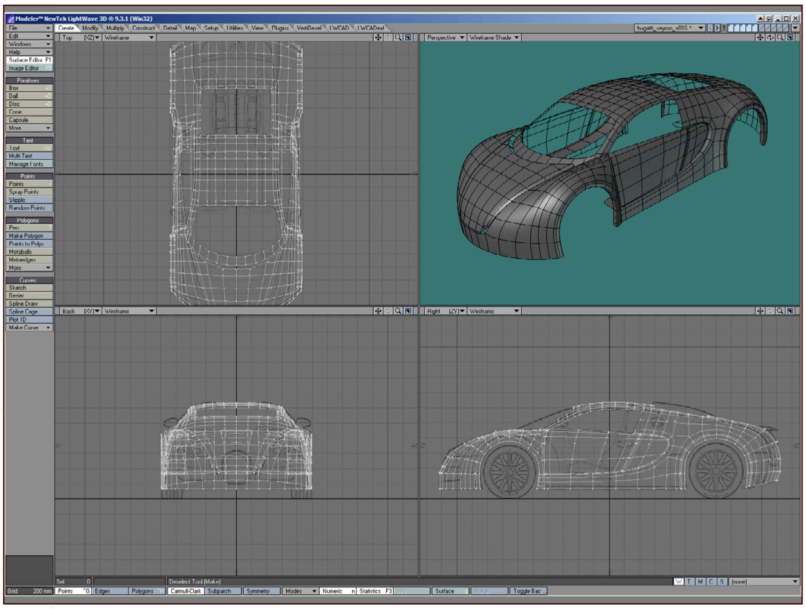


Fig 54

That then concludes the first section of this series, and we can see we most definitely have a Bugatti Veyron in the making. The fact you can see what car it is already is a nice milestone to reach!

Next time comes the addition of grilles, vents, external door fittings, windows, and the separation of key areas of the body panels, which as yet are singular pieces.

BUGATTI VEYRON: PART 1

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Bugatti Veyron
car modelling series

Maya

The series will cover an in-depth and comprehensive guide to modelling the amazing Bugatti Veyron car, from start to finish, and will focus on the key techniques and stages involved in building the chassis, as well as details such as the windows, lights, vents, petrol caps, engine parts and so on. We will then move on to creating the wheels, including tyres and hubcaps, before going on to building and incorporating an interior, namely the dashboard and seating. The series will proceed with a section on creating and applying materials for the numerous parts of the car, such as the paint work, chrome, rubber and glass, before concluding with a tutorial devoted to setting the scene for a finished render. The final part will cover the importance of a good lighting rig and light parameters, as well as the importance of a camera and the integral part that the rendering settings play in showcasing the model for a portfolio.

This series aims to show a comprehensive guide to creating a finished car for people new to this type of exercise, but is not suitable for beginners who are not familiar with using 3D software. The tutorials do not detail every single step of adding individual edge loops and vertices, but does endeavour to outline each important stage and explain the crucial techniques necessary to following the exercise.

The schedule is as follows:

Issue 029 January 2008
MODELLING THE CHASSIS - BASICS

Issue 030 February 2008
MODELLING THE CHASSIS - DETAILS

Issue 031 March 2008
LIGHTS, RADIATOR GRILL & VENTS

Issue 032 April 2008
WHEELS, TYRES & RIMS

Issue 033 May 2008
INTERIOR

Issue 034 June 2008
THE MATERIALS & FINISHES

Issue 035 July 2008
LIGHTING SET UP & RENDER

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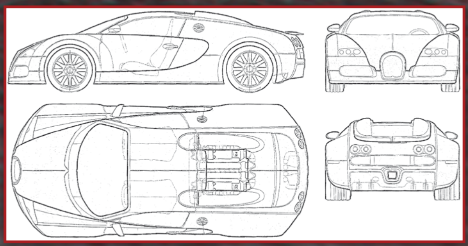


www.the-blueprints.com

Modelling the Chassis Part 1 - Basics

Welcome to the first part of a new tutorial series outlining the techniques used to create a car, from start to finish. The car in question will be the Bugatti Veyron supercar, but these techniques can be used to model just about any type of vehicle.

Before we begin modelling we must carry out the most important part of any 3D project – collecting references! Without reference images it would be very difficult to produce an accurate representation of whatever it is you're trying to create. So, use Google and any other websites necessary to collect as many pictures from as many angles as possible to aid you in the modelling phase (please visit www.the-blueprints.com for blueprints). Videos can also be useful (especially if you intend to rig your model), such as those found on sites like YouTube. Also, if money allows, an actual die cast model can be extremely useful, as well.

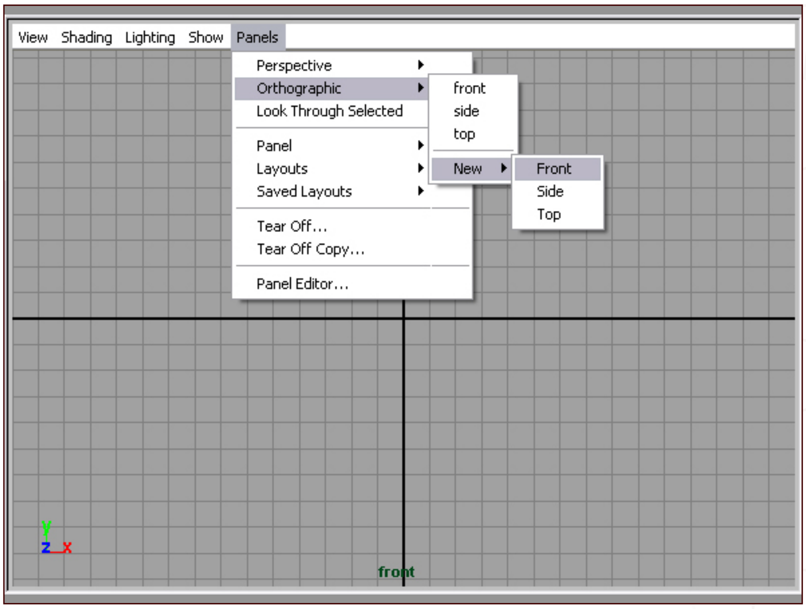
For this tutorial we will be constructing the Veyron from a curve network. This involves tracing the major lines of the car using the EP and CV curve tools to create a 3D guideline of your model, which we will use to snap CVs to. Try to use as few points as possible to achieve the desired shapes. Although this stage is a little time consuming and tedious, it greatly speeds up the modelling stage and yields very clean and tidy results, so try to spend as much time as possible getting the curves just right. Also, don't be afraid to modify and add curves during the surfacing phase.

1. The first step is to find some blueprints (if possible). I found these particular blueprints from www.the-blueprints.com, and they will need to be cropped in Photoshop (or a similar package) before we use them.

We will set the blueprints up so that they reside in a different camera to the one that


Image by Craig Clark

Fig 01



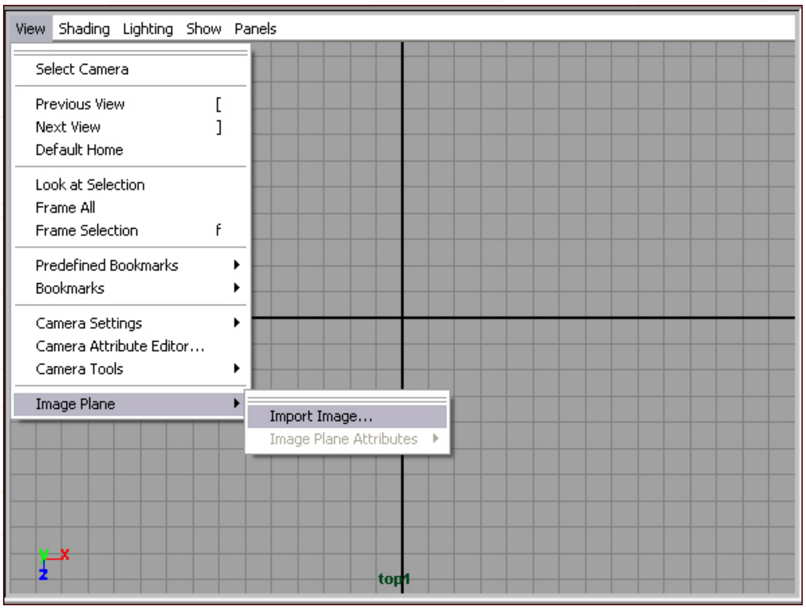


Fig 02

we are working in. This can help to speed up performance when using high resolution images and is a good habit to get into.

For each of the orthographic viewports, select: Panels > Orthographic > New > and select the respective viewport, which in this case is ‘Front’ (**Fig01**).

2. Next, for each viewport select: View > Image Plane > Import Image (**Fig02**), and then locate the cropped image for each particular viewport.

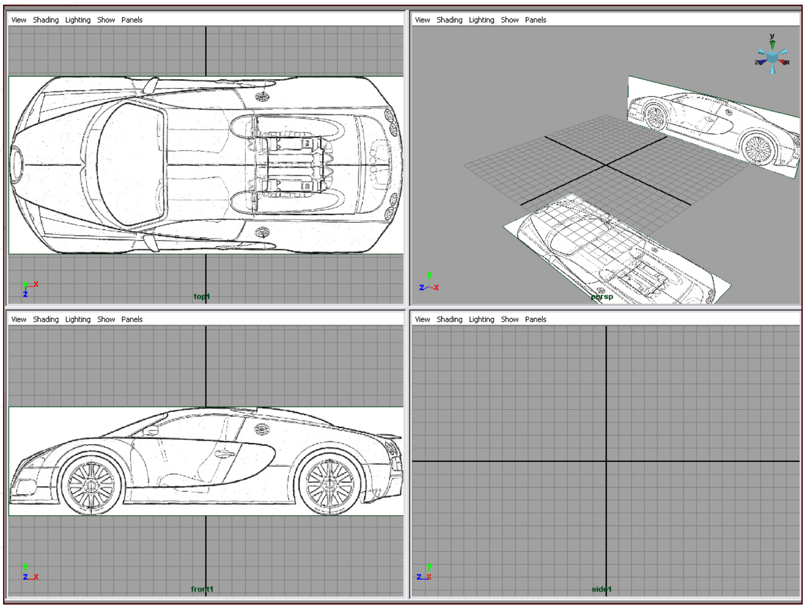


Fig 03

3. Bear in mind that unless you rotate the top image in Photoshop, your ‘Front’ view will actually be displaying the side of your car. This is nothing to worry about (**Fig03**). Also note that the ‘Side’ view will need to display both the front and back images of the car.

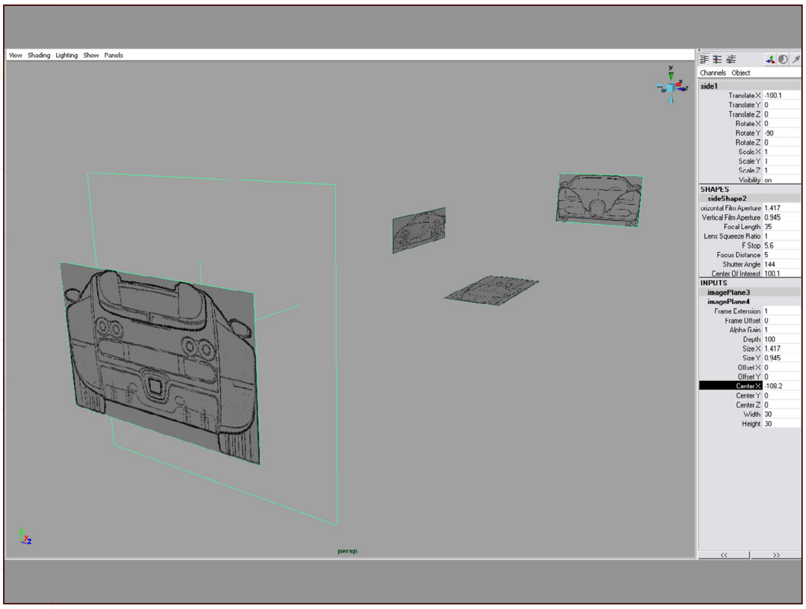
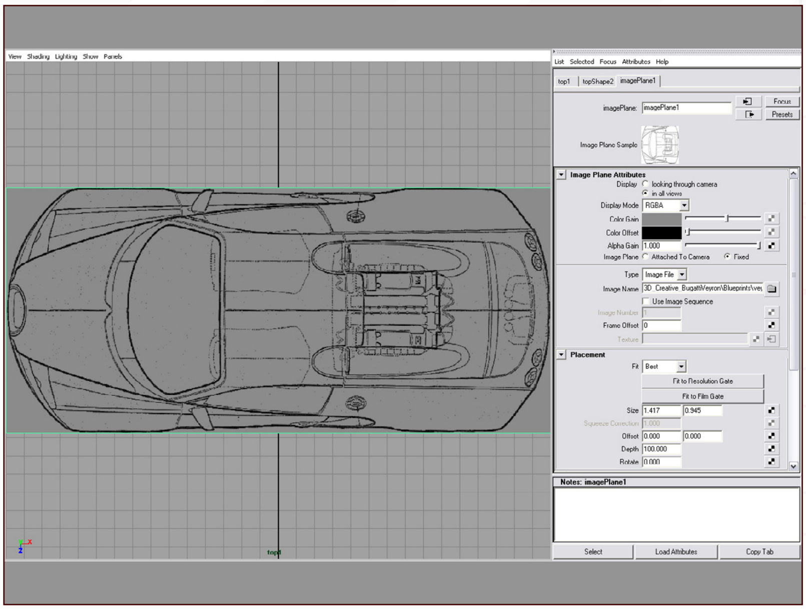


Fig 04

4. Under View > Predefined Bookmarks, you have the option of Left Side and Right Side. The Left Side needs to display the front image plane and the Right Side needs to display the back. The back image plane also needs to be positioned behind the Left Side camera object in the perspective view (**Fig04**) using the CentreX attribute. This means that the front image needs to be placed behind the Right Side camera.

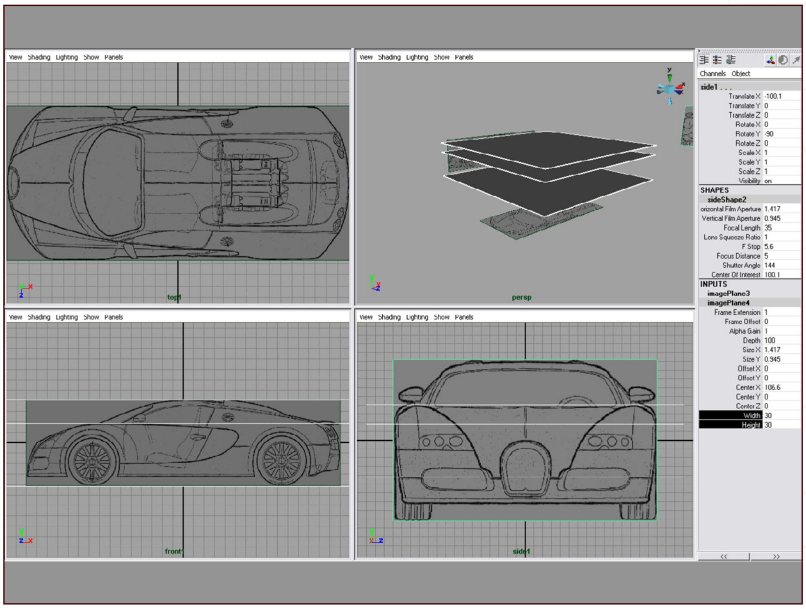
5. As a matter of personal preference, I like to darken the blueprints because it makes the lines easier to see. Select the image plane in the Perspective view and go to the Attribute Editor > ImagePlane1 (or whichever number/name it is), and move the 'Colour Gain' slider to a dark shade of grey (**Fig05**). Repeat this step for all image planes.

Fig 05



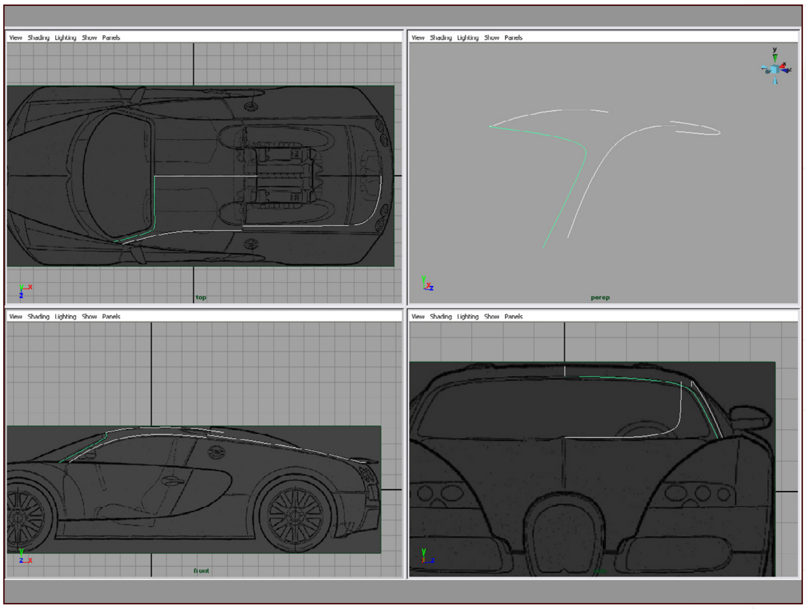
6. Both the front and back images need to be scaled so that they line up with the side and top views. We will use polygon planes as guides so that we know how much to scale by. To scale the front image, align the polygon planes with the major points of the car in the side view: the top of the car, the bottom and the bonnet. This then gives an indication of how much to scale the front and back image, by using the Width and Height attribute of the image plane's camera (**Fig06**). The three polygon planes have been selected in the side view so you can see how much bigger the front image plane is. You may also need to reposition the image plane using the CentreX, Y and Z attributes. Once all of this is done, repeat these steps so that all of the image planes are lined up and the correct scale. Once this is done, the blueprints are ready. The final step is to create a New Layer and add all the image planes into this layer, then Reference the layer so the images can be seen but cannot be selected. Finally, select the Four View in the Toolbox, and we're ready to begin the curve network.

Fig 06



7. The curve network is relatively simple and can be started anywhere you wish. I began by outlining the major curves of the roof (**Fig07**) and continued to build on this until a complete outline of the car was achieved. Make sure that you use all available views to line up the curves and use as few points as possible. Also

Fig 07



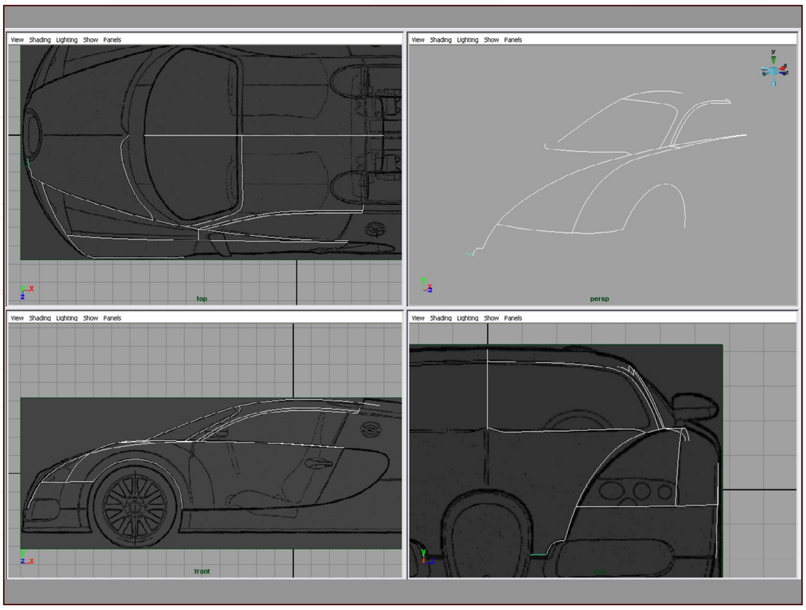


Fig 08

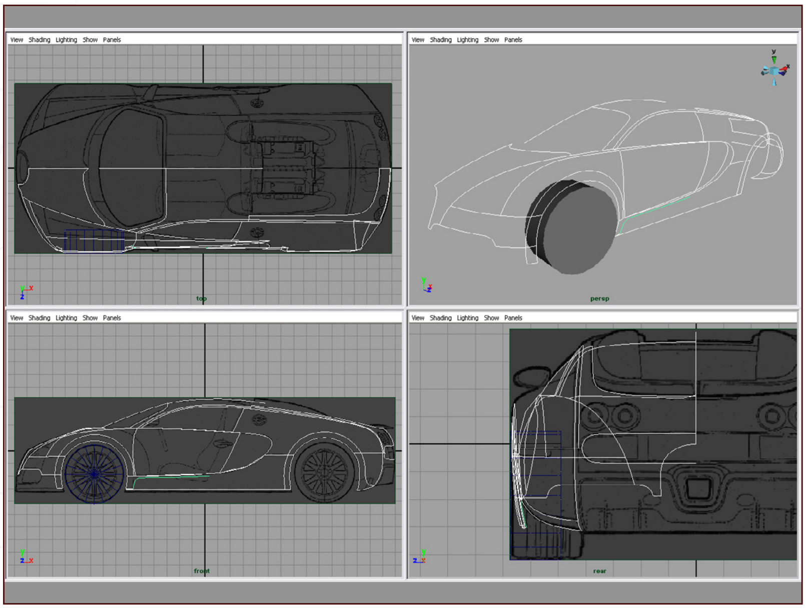


Fig 09

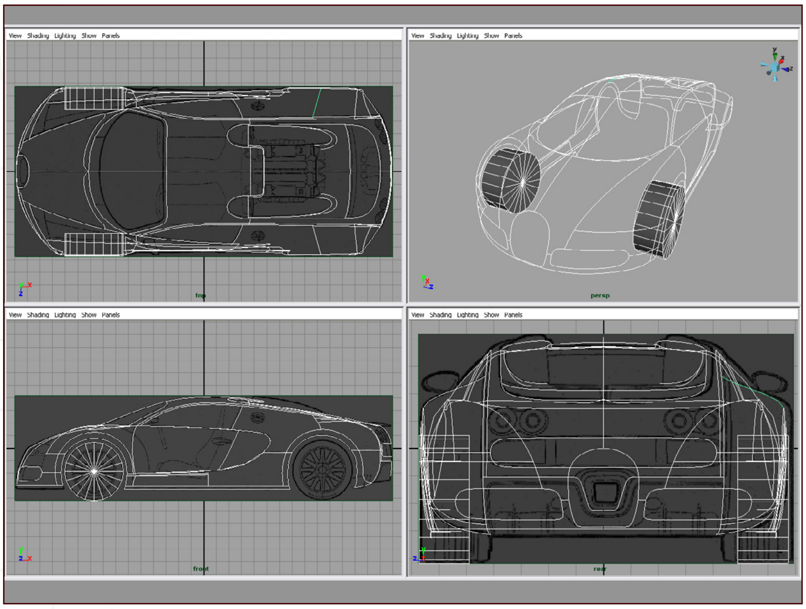
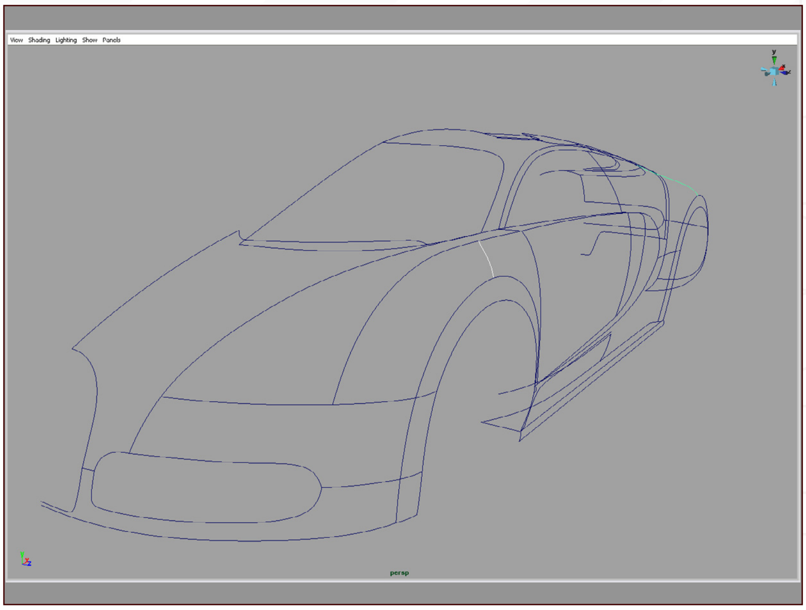


Fig 10

remember that hardly any blueprints are 100% accurate, so you will either need to choose one image plane as "correct" and follow that one 100%, while following the general shape of the other images. The other way is to take averages between the images to create your curve network. Some of the stages involved can be seen in **Fig08** and **Fig09**, while **Fig10** shows the completed curve network which has been grouped and duplicated to get an idea of how the overall car will look. It is not necessary to keep these mirrored curves, so delete them – they are just to give an overall feel for how the car will look. Also notice that there are no curves for the front air intake and rear fins – they will be added later (if necessary) when we model them.

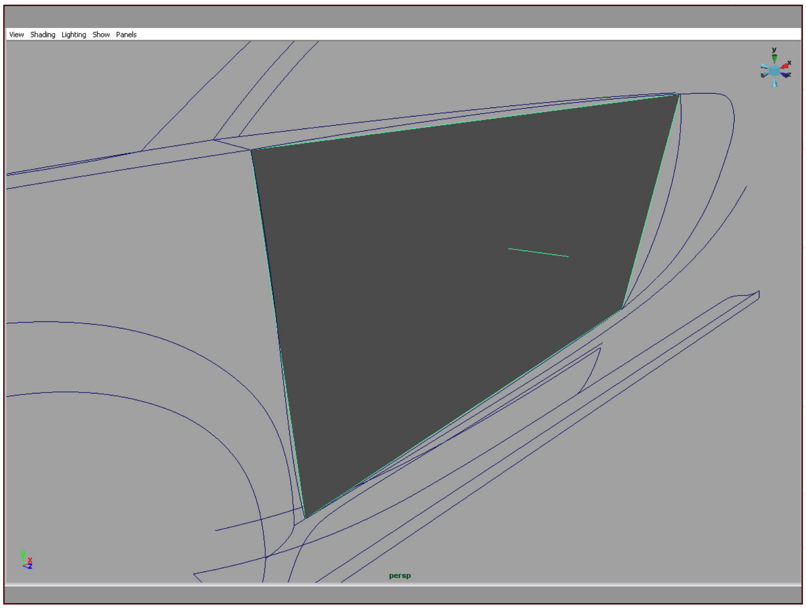
8. Fig11 shows the completed half of the car. It is easier to see how the side skirt vent has been outlined and shows the control curves. The two highlighted curves help outline the curvature of the car. The side vent was created using the reference images that I had collected, because not all features are present on blueprints.

Fig 11



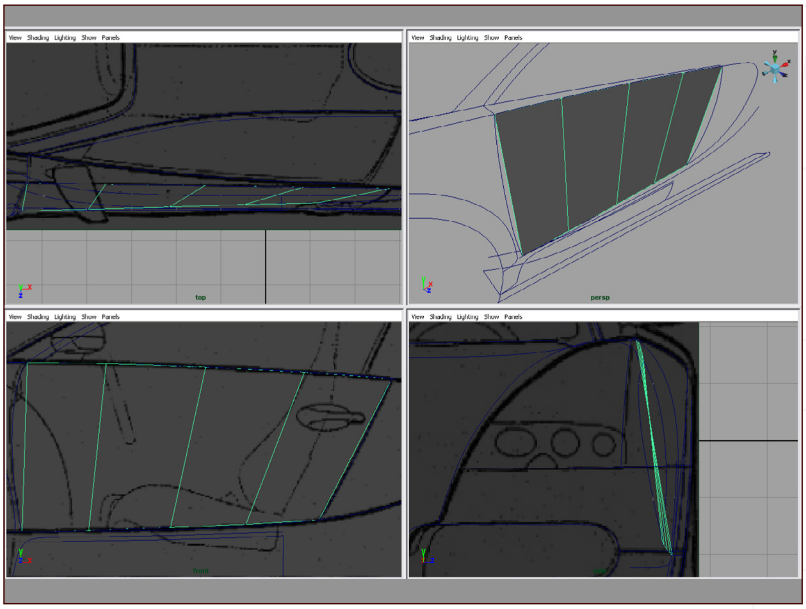
9. Now we move onto the modelling phase, which should move a lot more quickly because we spent so much time and care setting up the curve network. All we are aiming to do in this section is to get the initial geometry in place. We will apply bevels and a smooth modifier in the next part of the tutorial. Using the Create Polygon tool from the Polygon menu, we will curve snap to each of the four corners of the door. Remember to always work anti-clockwise when using this tool, so that your 'normals' are facing outwards (**Fig12**).

Fig 12



10. Using the spline network as a guide, begin cutting and shaping more detail onto this polygon to get the shape of the door. Try and keep the polygons evenly spaced along the surface and follow the flow of the door (**Fig13**). If you add too much detail too early, it becomes harder to control and will lead to denting when a smooth modifier is added. Add the cuts slowly using the Split Polygon Tool (with magnets set for accuracy) and the Split Edge Ring Tool (for speed). My personal preference is the latter tool; I then go in and shape the verts, as required.

Fig 13



11. This process can be seen in **Fig14**, **Fig15** and **Fig16**. Notice how the edges towards the top of the door are closer together? This is because the door has quite an extreme bulge at the top and then curves inwards slightly towards the bottom. A quick tip for finding dents in your mesh is to sight down rows of verts and look for verts that are unevenly distributed along the surface.

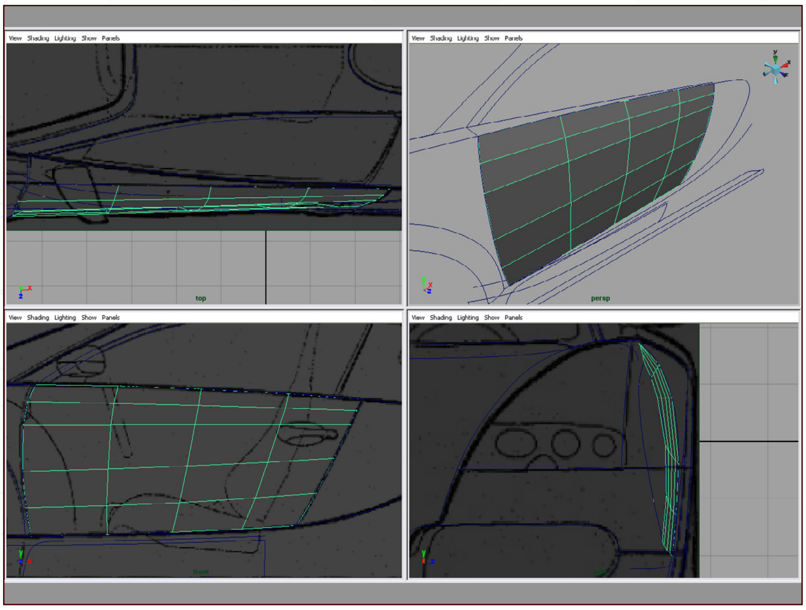


Fig 14

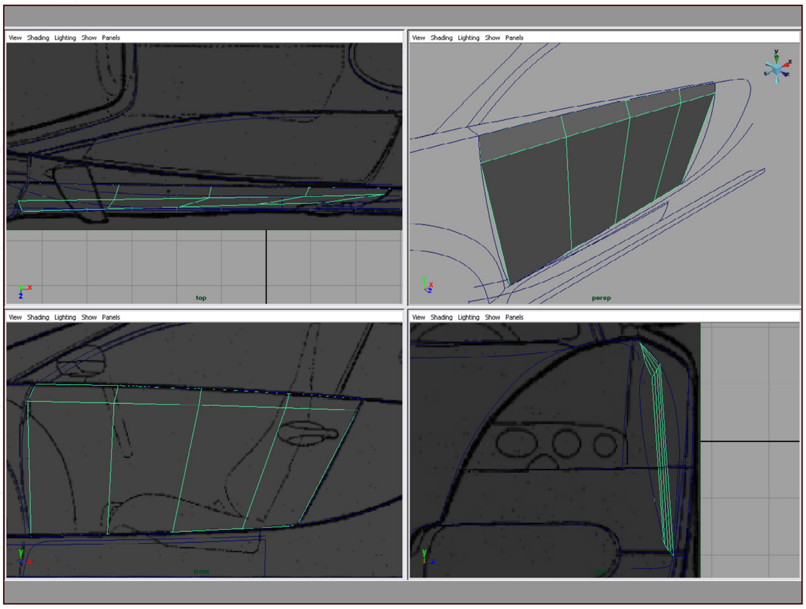


Fig 15

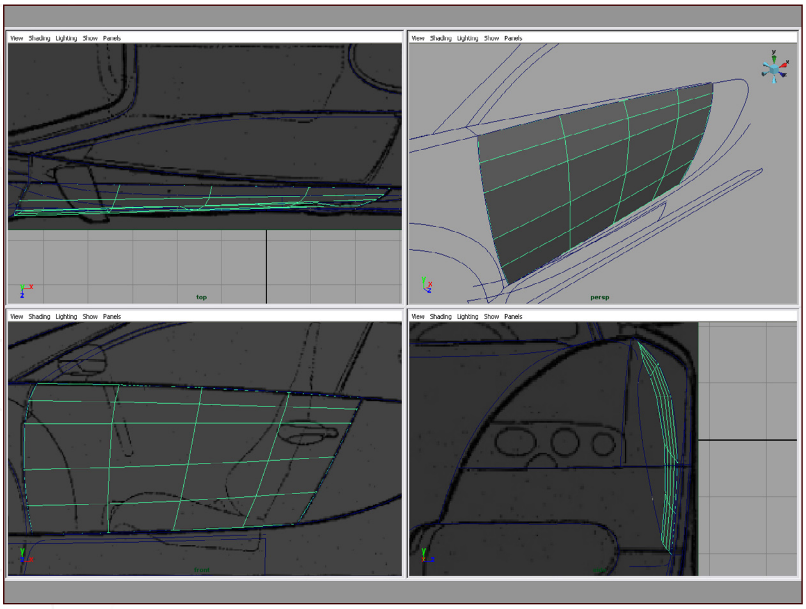
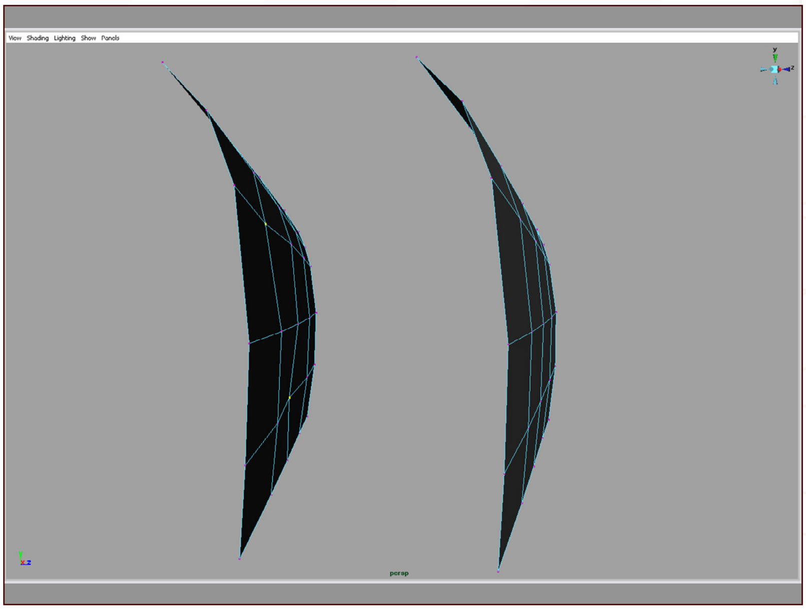


Fig 16

12. Looking at **Fig17**, you can see that the two highlighted verts on the surface on the left are breaking up the flow of the geometry. This will lead to denting. The surface on the right has a smooth flow of verts and will lead to nicer smoothing results.

Fig 17



13. The final thing to do on the door is to grab the top row of edges (**Fig18**) and extrude them outwards. It doesn't really matter where because we will be snapping them to the curve that outlines the top of the door (**Fig19**).

Fig 18

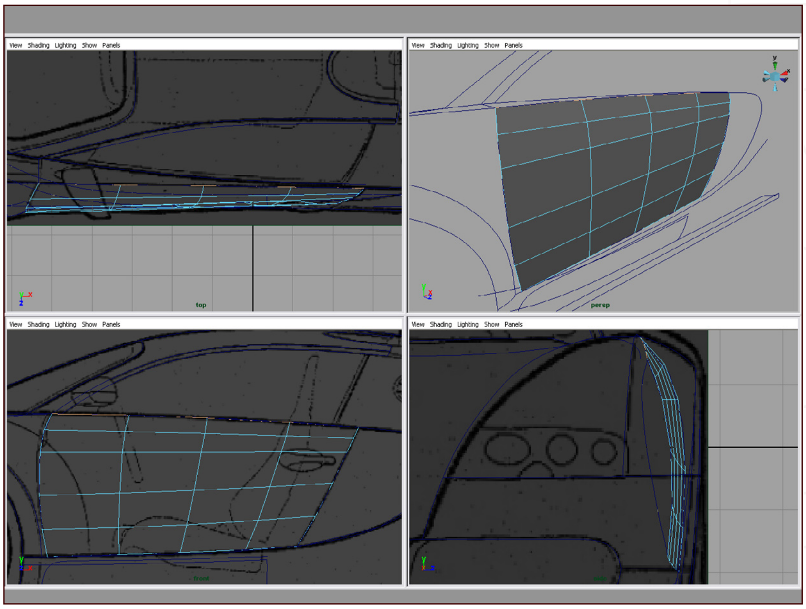
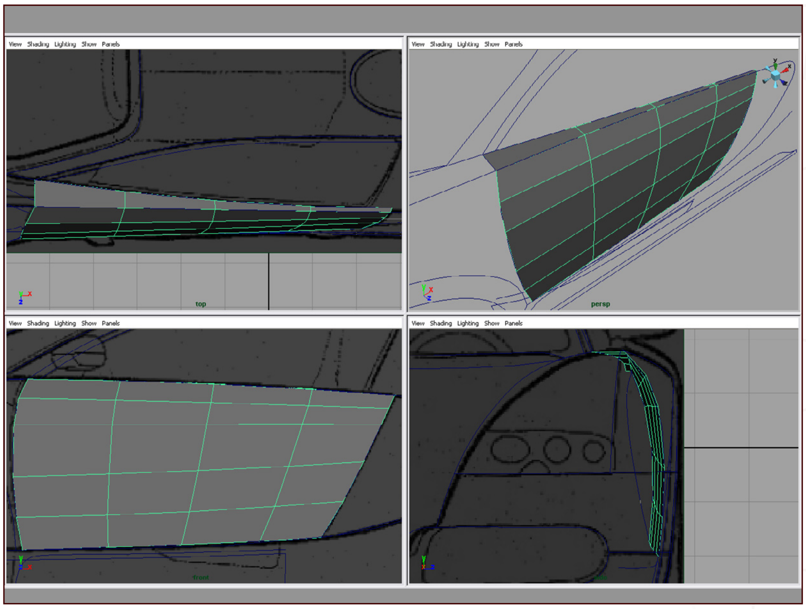


Fig 19



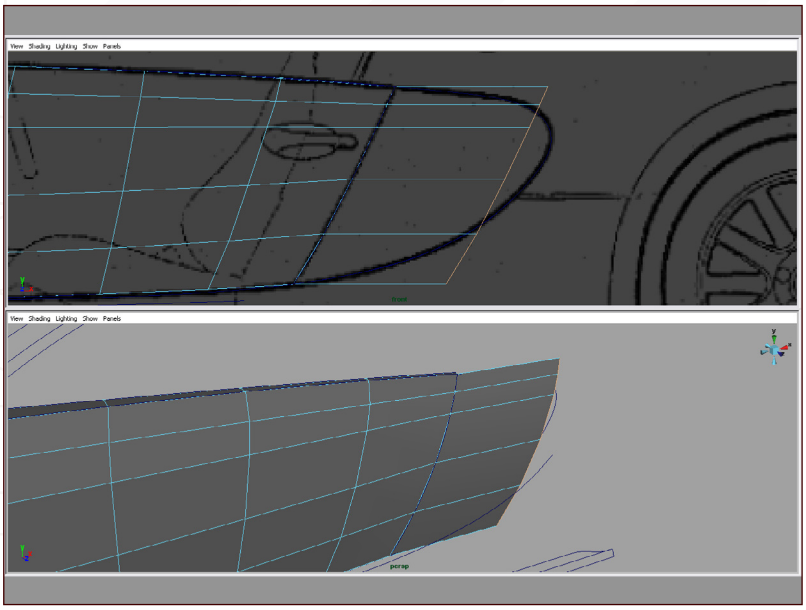


Fig 20

14. The next bit is really simple: we will create the little panel that comes off the back of the door. Grab all the edges along the back of the door, ignoring the top back edge (**Fig20**), and extrude outwards. Again, it doesn't matter where.

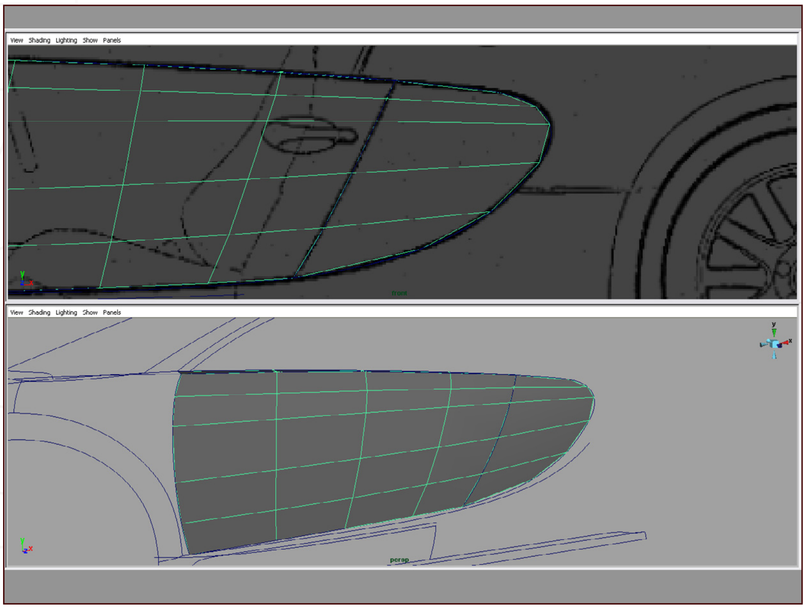


Fig 21

15. Then snap these new verts along the curve to shape the side panel (**Fig21**).

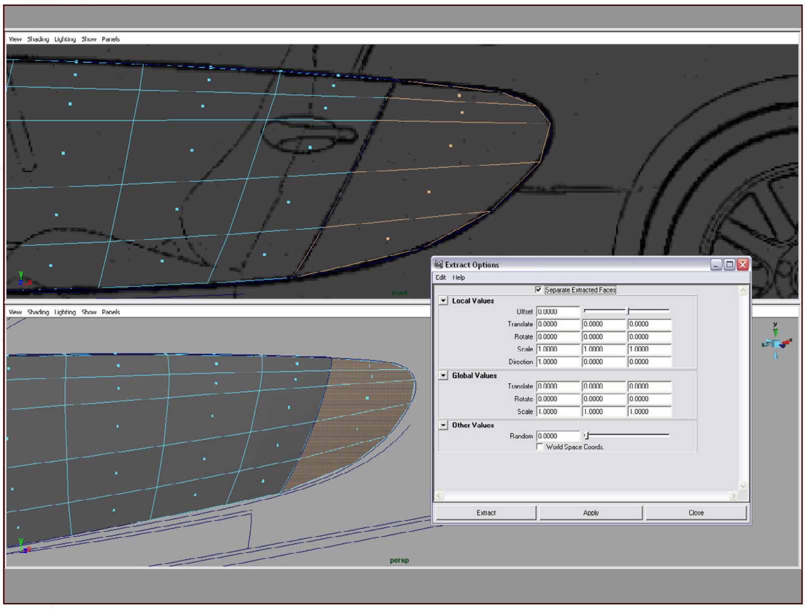
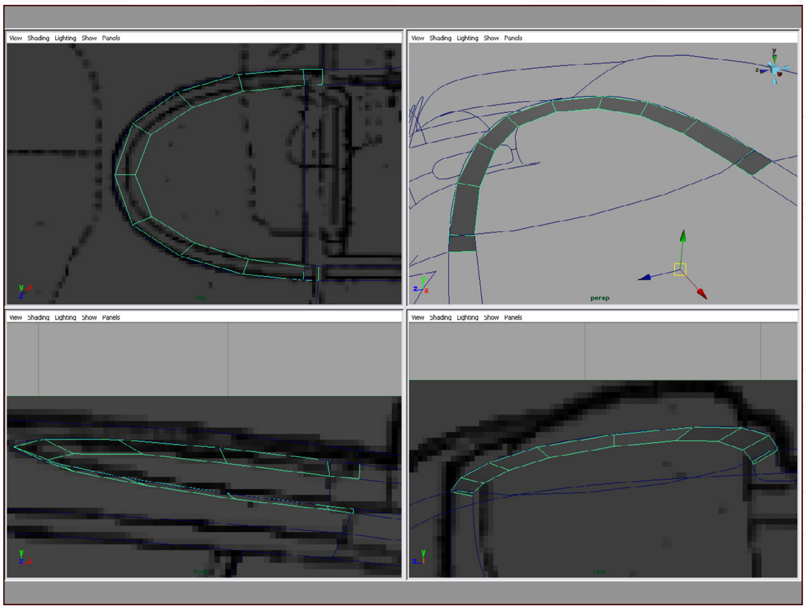


Fig 22

16. The final step is to select the highlighted faces and use the Extract command from the Polygons menu (**Fig22**). Notice that Separate Extracted Faces is ticked. This makes the selected polygons a new object. I reserve the right to add more cuts in the next section of the tutorial if I feel it's necessary, once I have bevelled and smoothed this panel.

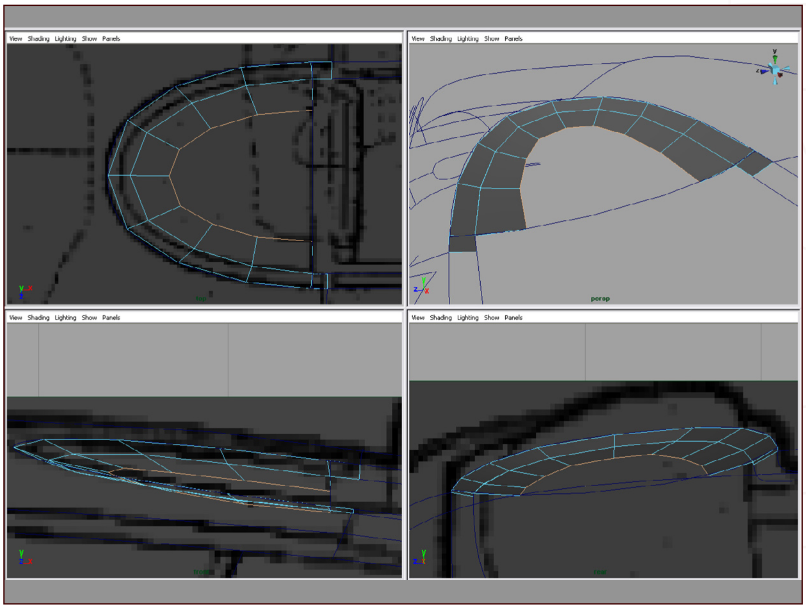
17. The roof of the car can be a little bit tricky, so we will take it slowly. At the back of the roof is a little semi-circular dip. We will concentrate on that first, and then the rest of the roof will go a lot more smoothly. Start by creating a rough semi-circular shape, using the curves as a guide and checking your references. I started by creating one polygon and either appended or extruded until I ended up with about ten faces outlining the shape. The inner edges of this new shape should dip down slightly. All of this is shown in **Fig23**.

Fig 23



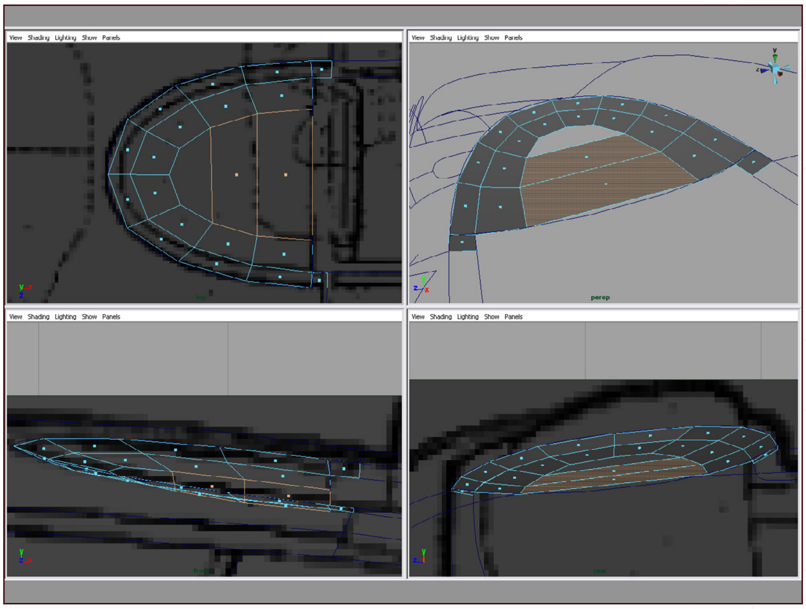
18. Select all of the inner edges, except for the very back two, and extrude them inwards. Try to keep all the verts evenly spaced and continue the downward curve. This can all be seen in **Fig24**, where the highlighted edges are the newly extruded ones.

Fig 24



19. Using the Append Polygon Tool, create the two faces, as highlighted in **Fig25**.

Fig 25



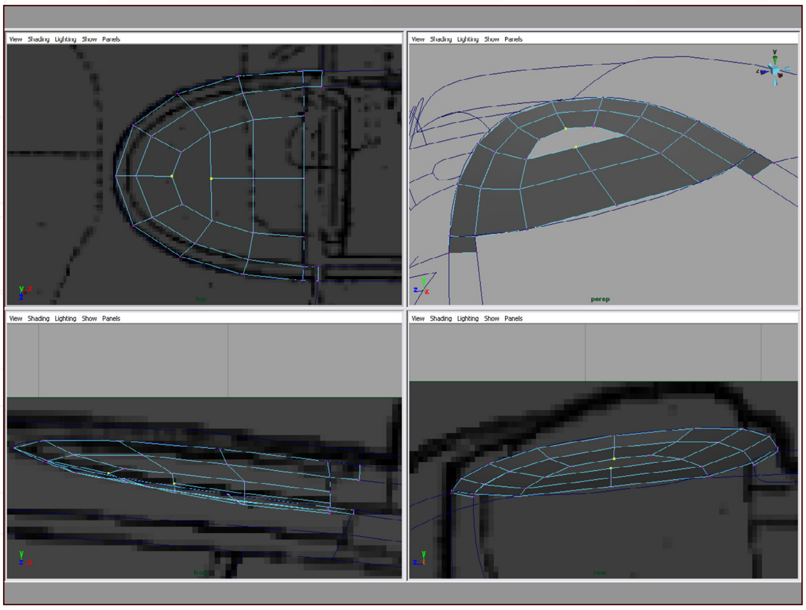


Fig 26

20. Split these two new polygons in half with the Split Edge Ring Tool and snap the highlighted vert on the right to the highlighted vert on the left (**Fig26**), and then merge these together.

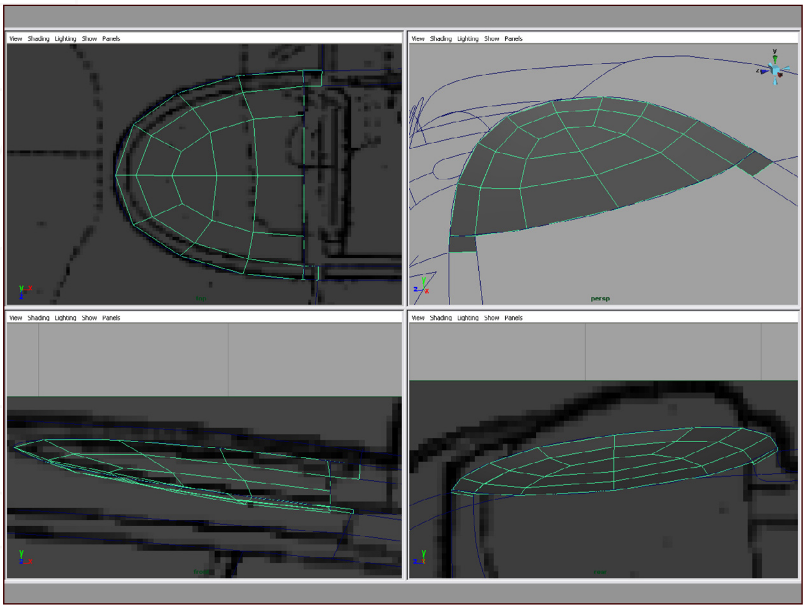


Fig 27

21. Shape these new verts until you get something similar to **Fig27**. The aim here is to keep the shape fairly circular with a uniform dip towards the centre.

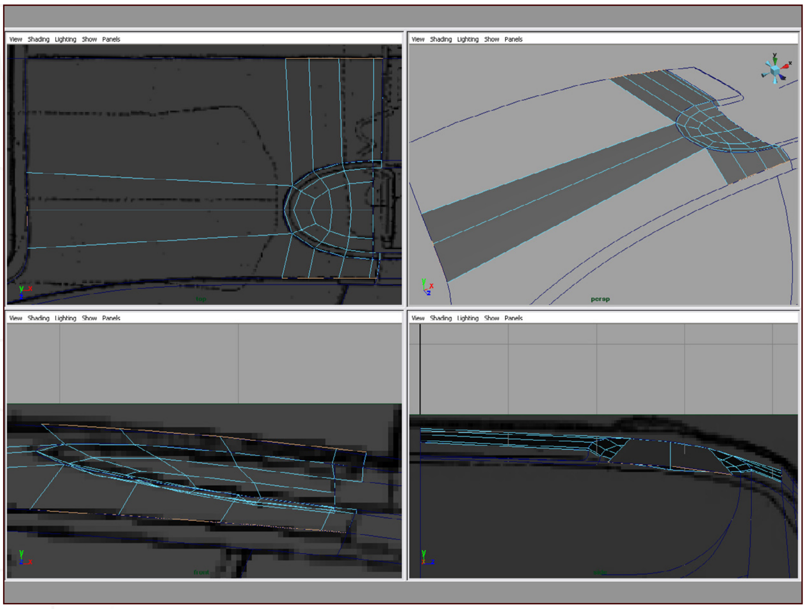
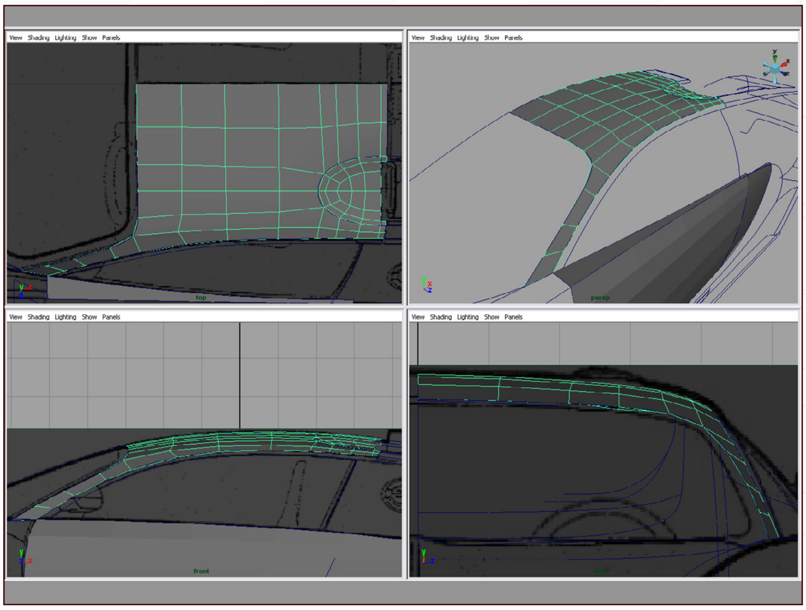


Fig 28

22. Extrude the highlighted edges (**Fig28**) and snap them to the guide curves.

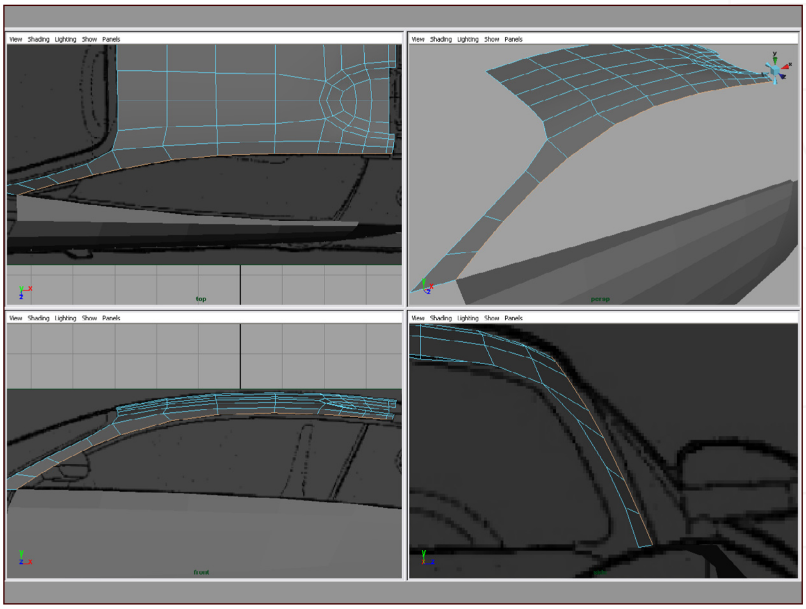
23. Continue extruding, cutting in detail and snapping to the guide curves until you get a similar surface to that shown in **Fig29**. Remember to sight down rows of vertices and adjust accordingly to keep a clean flowing mesh – don't let this consume too much of your time though, because we will address any major issues when we smooth.

Fig 29



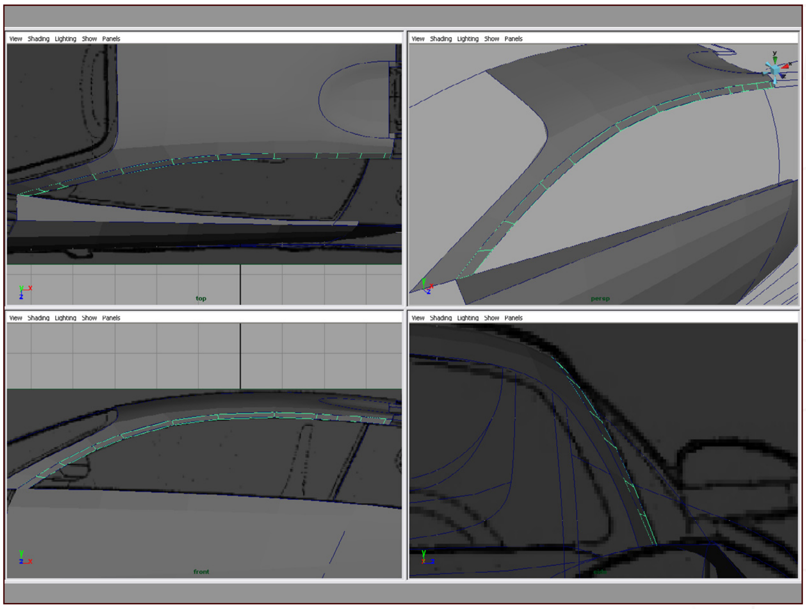
24. Now select the edges highlighted in **Fig30** and extrude them.

Fig 30



25. Select these new faces and Extract them, then snap them to the curve to get something similar to **Fig31**.

Fig 31



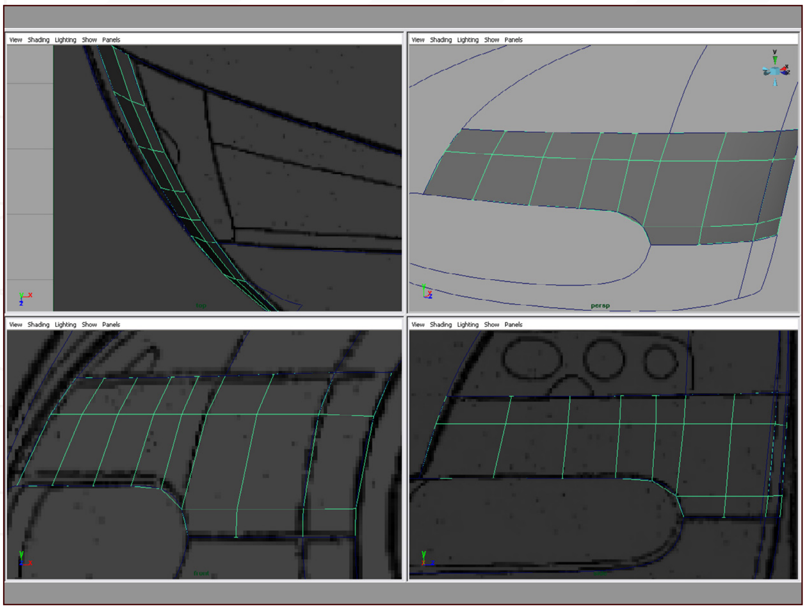


Fig 32

26. The next few pieces are fairly self explanatory and just use a combination of the techniques already used. So I will just show screen grabs for each new piece of geometry so you can see the poly flow.

The front panel (just under the front lights) can be seen in **Fig32**.

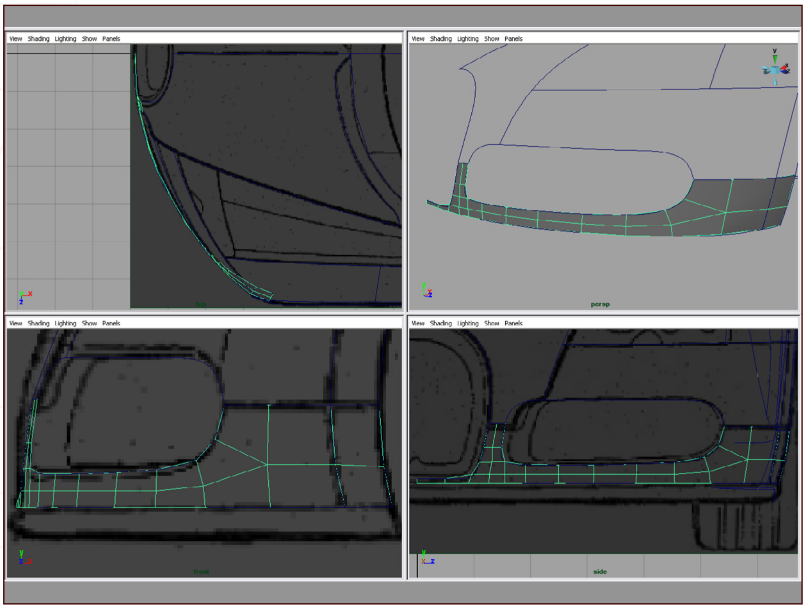


Fig 33

27. **Fig33** shows how the front bumper was created. Just remember to use your guide curves and build up detail slowly and evenly. I'm not sure if I'm 100% happy with the geometry flow, so I reserve the right to amend it in the next section if it doesn't look right with a smooth and bevel.

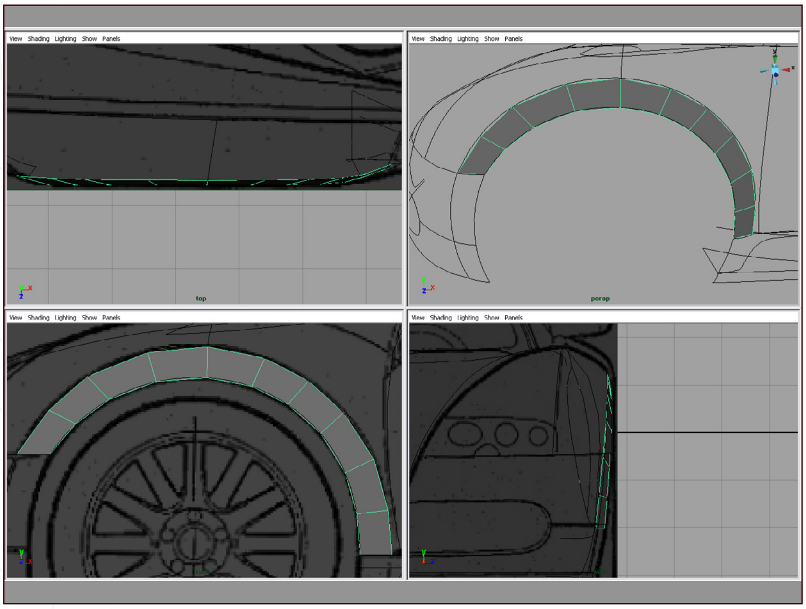
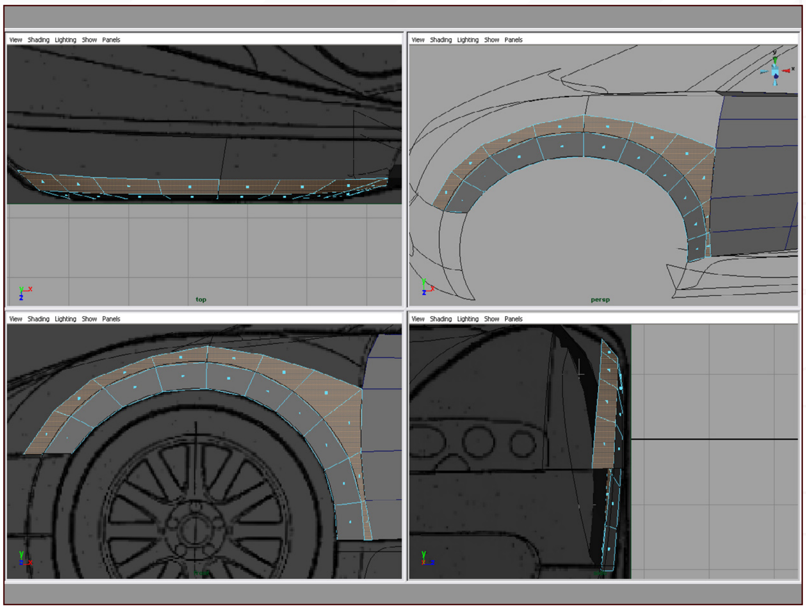


Fig 34

28. The front fender is a little bit tricky, so pay attention and build it up slowly. We will start with a ring of faces to outline the wheel arch (**Fig34**). You should have two curves outlining the wheel arch, so snap to these.

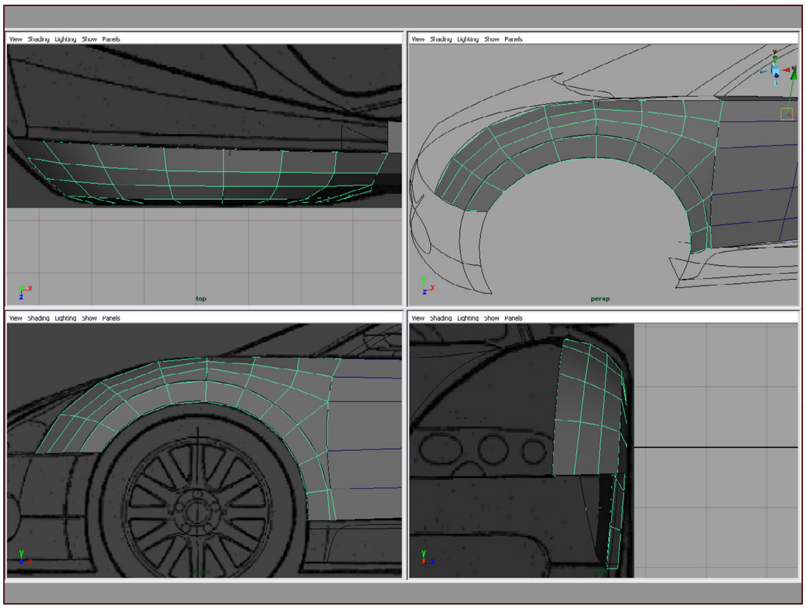
29. The highlighted faces (**Fig35**) were created with an extrusion and the verts near the door surface have been snapped to it (keep these surfaces separate). Remember to shape the new verts as you go, paying attention to the shape of the front fender.

Fig 35



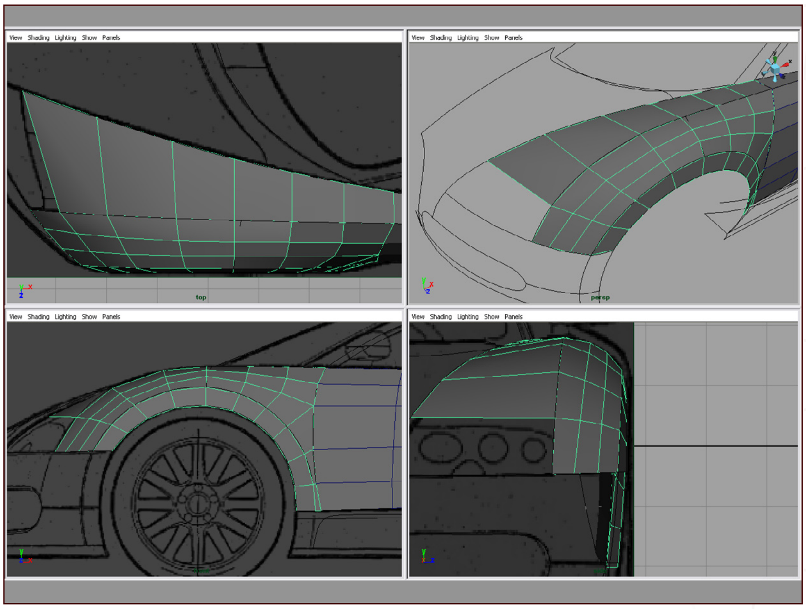
30. Two more extrusions should see you end up with something similar to **Fig36**. Keep shaping as you go along and snap to the door verts to keep a nice flow to the model.

Fig 36



31. If you look at references of the front fender, you will notice a crease in the surface. This is where we have extruded out to so far. I like to then extrude outwards and snap to the curve representing the end of the fender (**Fig37**), before cutting detail back in and shaping (**Fig38**). Remember to leave a gap for the headlight.

Fig 37



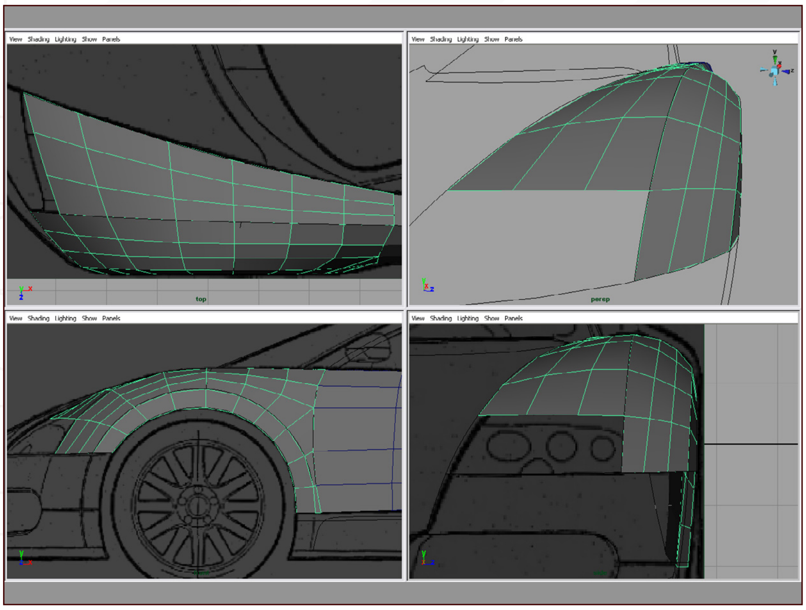


Fig 38

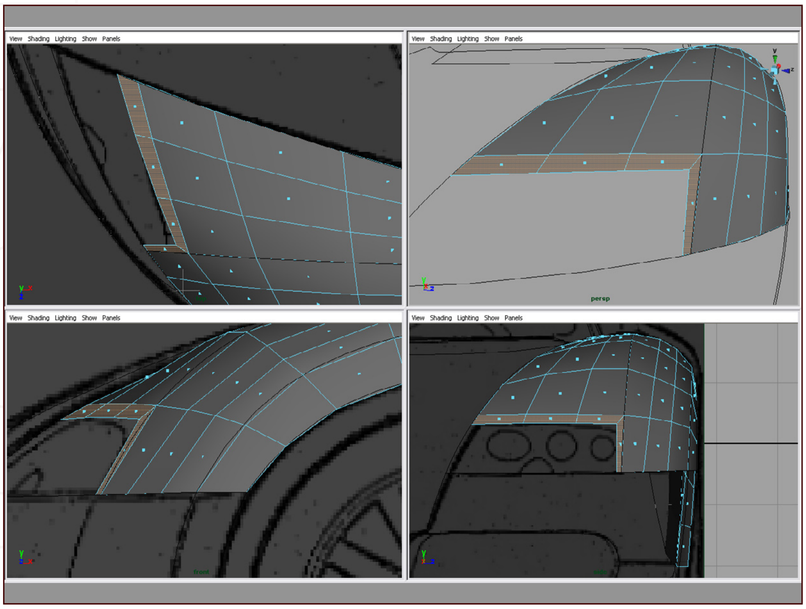


Fig 39

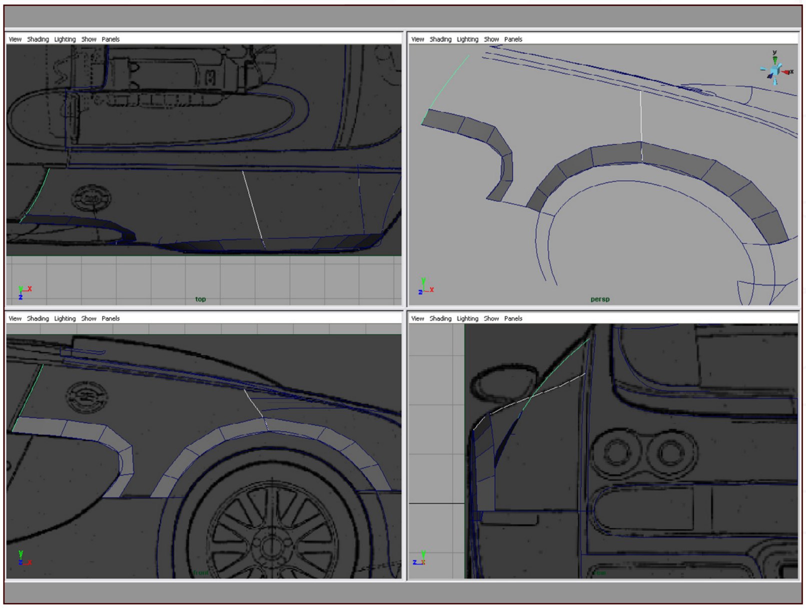
32. The final thing to do is to extrude the edges surrounding the headlight to get the highlighted faces in **Fig39**. Shape these new edges to follow the flow of the front fender.

Fig 40

33. The rear fender is probably the hardest part we have tackled so far, mainly because it needs to flow in many directions at once. Good references are the key here. Notice how the fender curves smoothly above the door before bulging out for the wheel arch (**Fig40**). This is quite a tough piece of geometry to get looking right!

34. Start off by outlining just above the actual wheel arch and the top most curve of the side air intake (**Fig41**). The two highlighted curves emphasise the previous point about the fender's curvature.

Fig 41



35. Extrude the front part of the fender upwards, following the curvature of the car (**Fig42**).

Fig 42

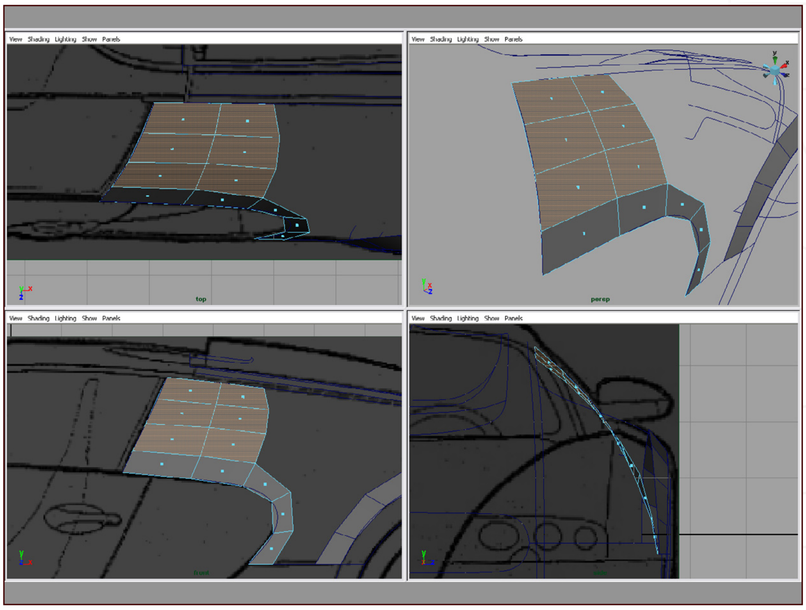
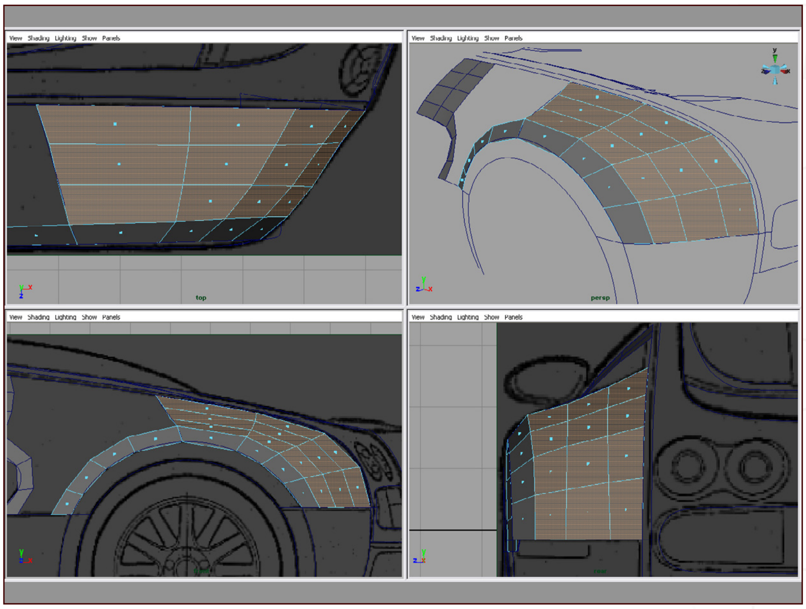


Fig 43



36. Next, extrude the back edges of the fender and shape, as shown in **Fig43**. Try to model the bulge of the wheel arch while keeping a clean distribution of polys.

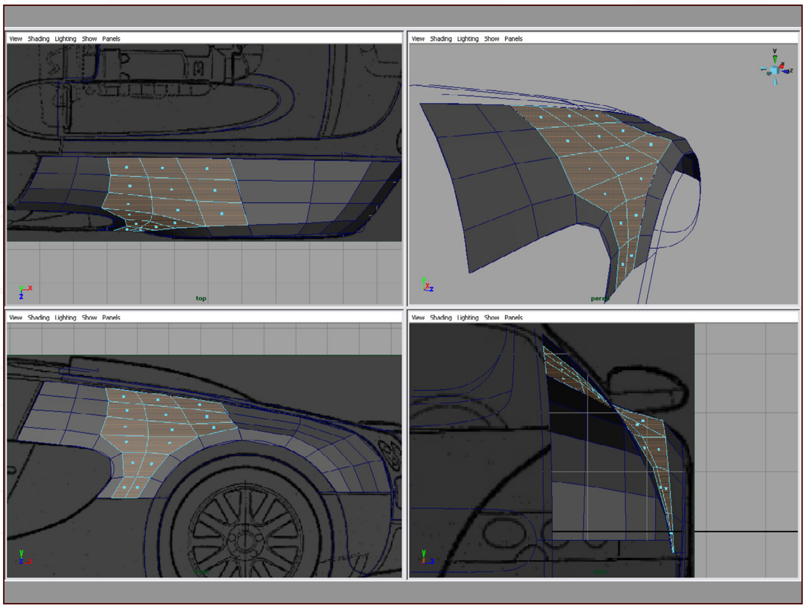


Fig 44

37. Once that is done, it's just a case of combining the two surfaces and filling in the middle polygons, remembering to shape the bulge of the wheel arch whilst keeping the front part of the fender curving smoothly (**Fig44**).

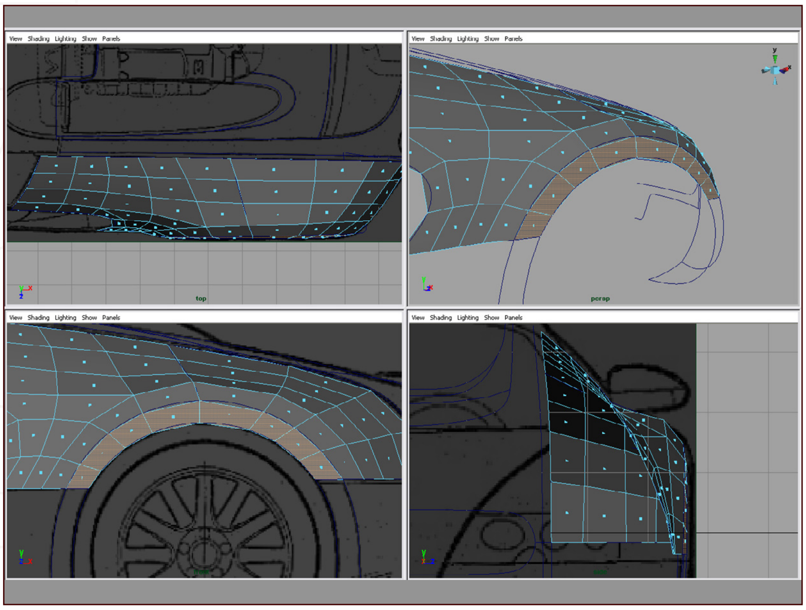


Fig 45

38. To finish the rear fender just grab the edges surrounding the wheel arch and extrude inwards (**Fig45**), then snap to the curve.

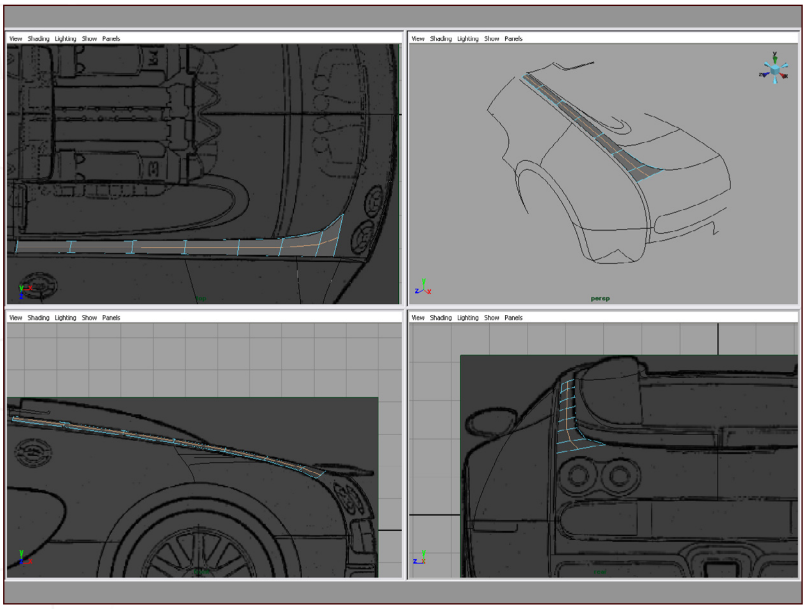
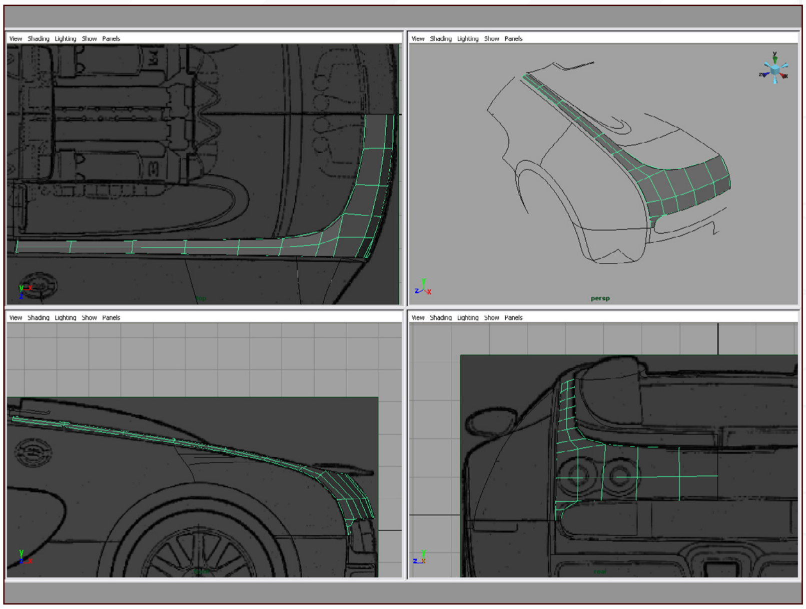


Fig 46

39. The back panel is very simple: basically just lay out faces to outline the long thin strip (**Fig46**). The highlighted middle edges need to be pulled up slightly for some subtle curvature.

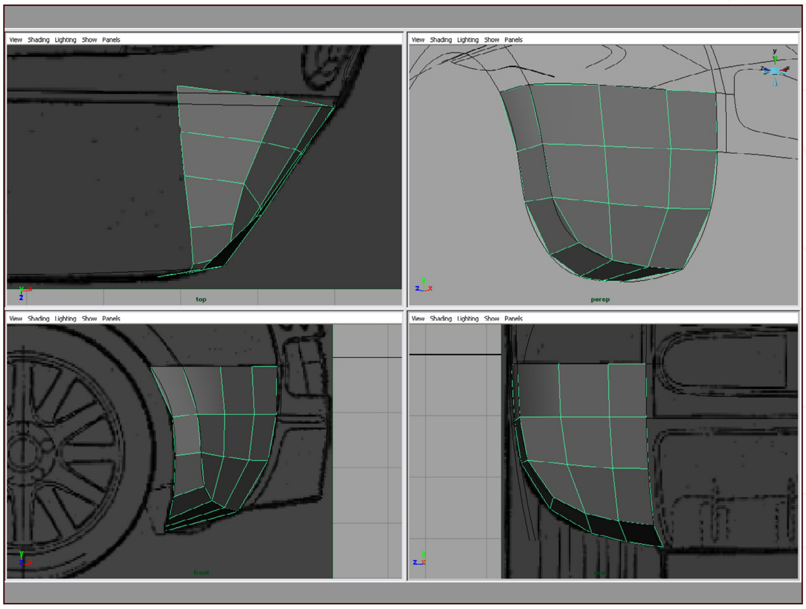
40. Just carry on working your way down to fill in the main back area, keeping the curvature nice and even throughout until the panel is completed (**Fig47**).

Fig 47



41. The panel underneath the rear fender is also very simple, so just use the techniques learned so far and try and get something similar to **Fig48**.

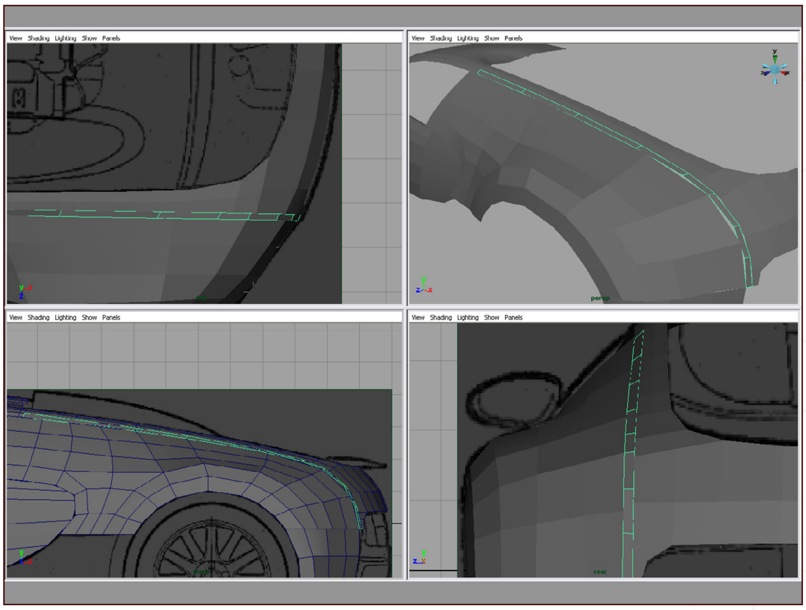
Fig 48



42. Model the thin strip that runs down the back of the car (**Fig49**); don't worry about the gaps in the mesh, this will be addressed when we smooth everything.

I think we'll leave the tutorial there for now because there has been a lot to digest so far. We will construct the last few panels in the next part of the tutorial and add a smooth modifier to all pieces. We will also give all of the pieces some depth and bevel the edges to create nice sharp corners, plus address any mesh flow issues and clean up the surfaces.

Fig 49



BUGATTI VEYRON: PART 1

Tutorial by:
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Bugatti Veyron
car modelling series

SOFTIMAGE® | XSI

The series will cover an in-depth and comprehensive guide to modelling the amazing Bugatti Veyron car, from start to finish, and will focus on the key techniques and stages involved in building the chassis, as well as details such as the windows, lights, vents, petrol caps, engine parts and so on. We will then move on to creating the wheels, including tyres and hubcaps, before going on to building and incorporating an interior, namely the dashboard and seating. The series will proceed with a section on creating and applying materials for the numerous parts of the car, such as the paint work, chrome, rubber and glass, before concluding with a tutorial devoted to setting the scene for a finished render. The final part will cover the importance of a good lighting rig and light parameters, as well as the importance of a camera and the integral part that the rendering settings play in showcasing the model for a portfolio.

This series aims to show a comprehensive guide to creating a finished car for people new to this type of exercise, but is not suitable for beginners who are not familiar with using 3D software. The tutorials do not detail every single step of adding individual edge loops and vertices, but does endeavour to outline each important stage and explain the crucial techniques necessary to following the exercise.

The schedule is as follows:

Issue 029 January 2008
MODELLING THE CHASSIS - BASICS

Issue 030 February 2008
MODELLING THE CHASSIS - DETAILS

Issue 031 March 2008
LIGHTS, RADIATOR GRILL & VENTS

Issue 032 April 2008
WHEELS, TYRES & RIMS

Issue 033 May 2008
INTERIOR

Issue 034 June 2008
THE MATERIALS & FINISHES

Issue 035 July 2008
LIGHTING SET UP & RENDER

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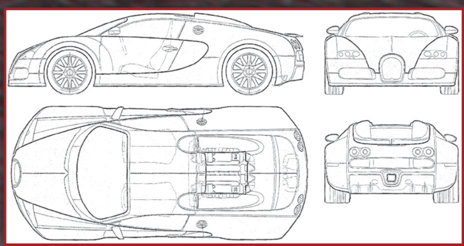


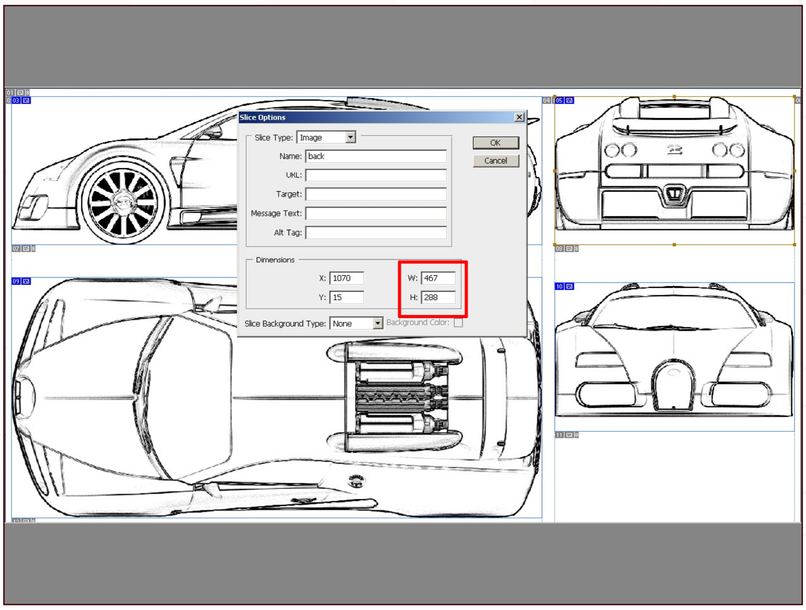
www.the-blueprints.com

Modelling the Chassis Part 1 - Basics

Welcome to the first part of this new car modelling series. This month, we'll take a look at that how you can start modelling a Bugatti Veyron 16.4. We are going to make the basic shell of the bodywork and panels, then an entire chassis with wheel arches, bonnet, roof and door panels. Before we start, we need to get high resolution pictures and blueprints of the car and its parts, which is going to be lot of help to us later on.

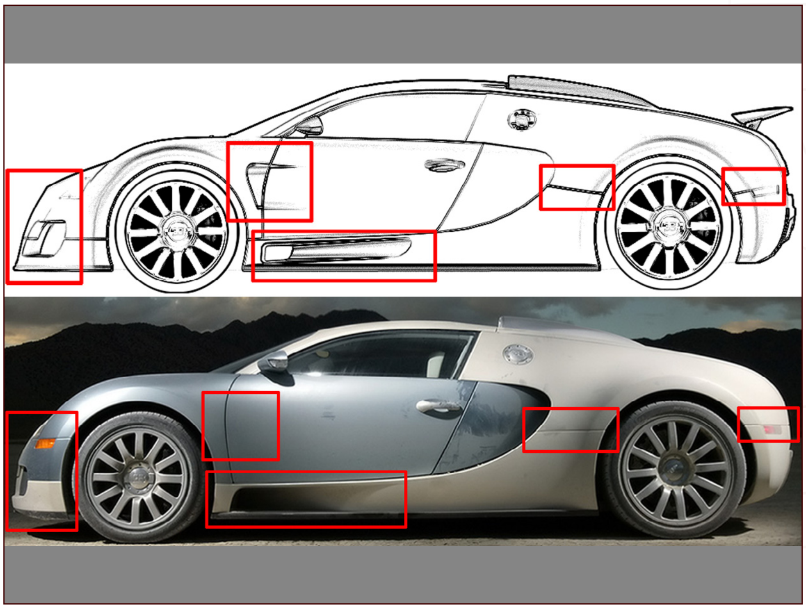
1. Let's start by looking at the scale of the blueprints. Fix them if needed, then crop the car prints part by part, for example using the Photoshop Slice Tool (blueprints can be found here: www.the-blueprints.com) (**Fig01**).

Fig 01



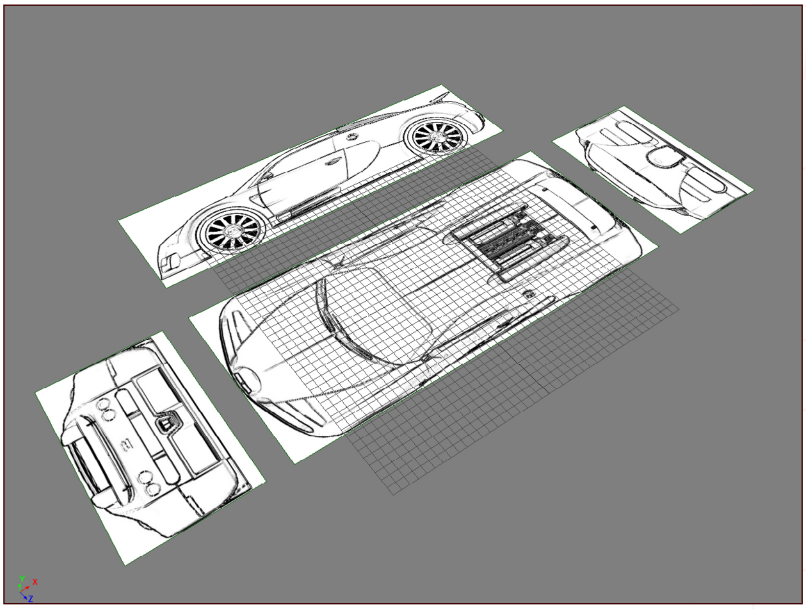
2. On the blueprints you can find a slightly changed Veyron; however, I like the standard model better, so after looking at the differences on other photographs I'm going to change the model a little (**Fig02**).

Fig 02



3. Open a new scene in XSI. First make Grids (Model Module > Get > Primitive > Polygon mesh) with the right scale you need, and put the blueprints onto them as textures (**Fig03**). It's worth re-sizing the grids to the size of the blueprints.

Fig 03



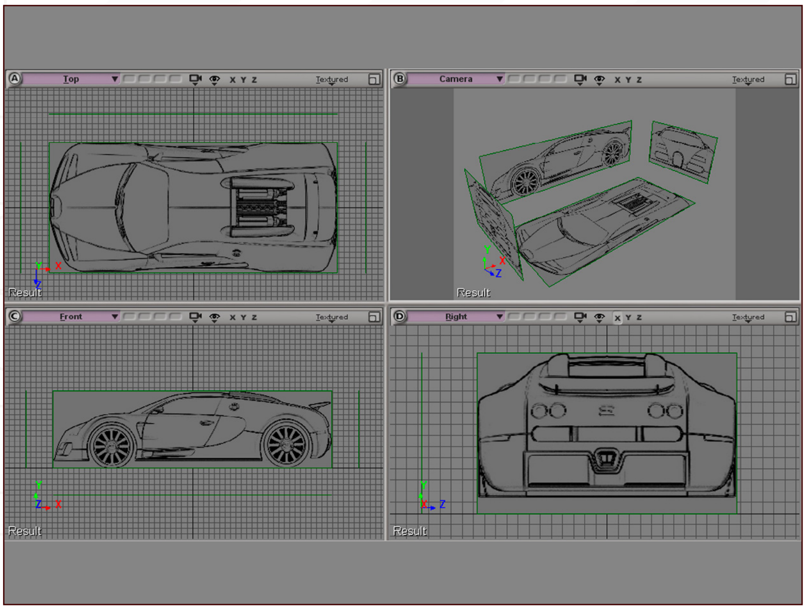


Fig 04

4. Let's rotate the grids and move them to their exact position. This is important, otherwise we may have to fix distortions later on. After this, change every viewport into Textured mode (**Fig04**).

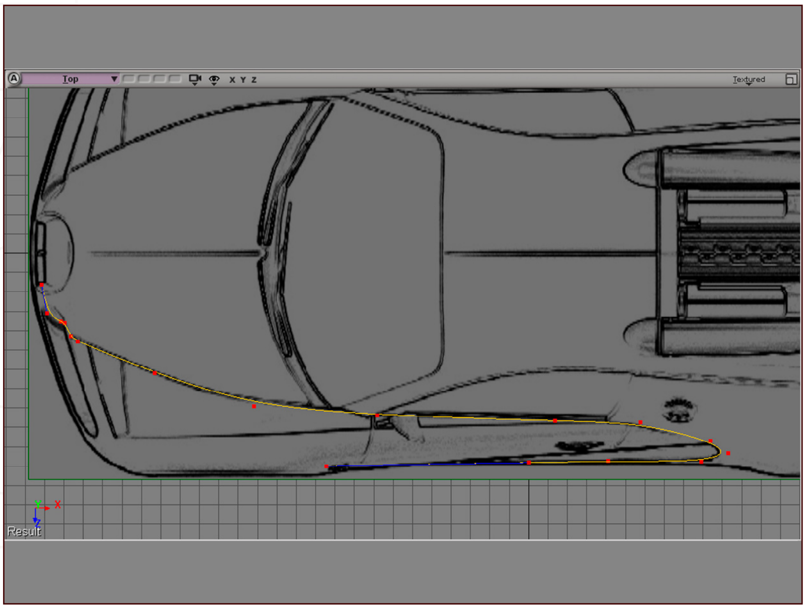


Fig 05

5. To make the modelling easier, we should draw the main line of the car with curves. For this, use Draw Cubic by CVs tool (Model Module > Create > Curve) and draw the lines from point to point in the Top view (**Fig05**). If need be, you can add more points to your line with the Add-Point Tool by CVs tool (Model Module > Modify > Curve), and if you don't need a point just select it and press Delete to delete it, or move it with the Translate Tool to its correct position.

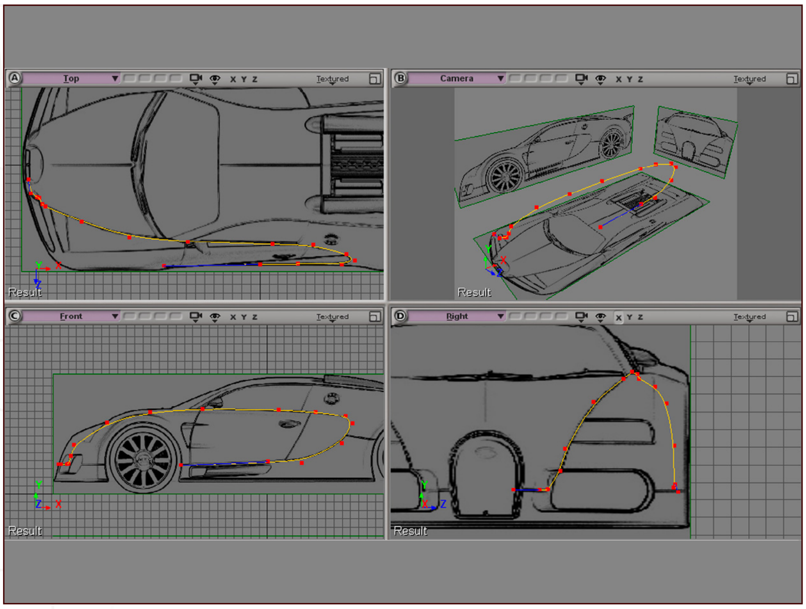
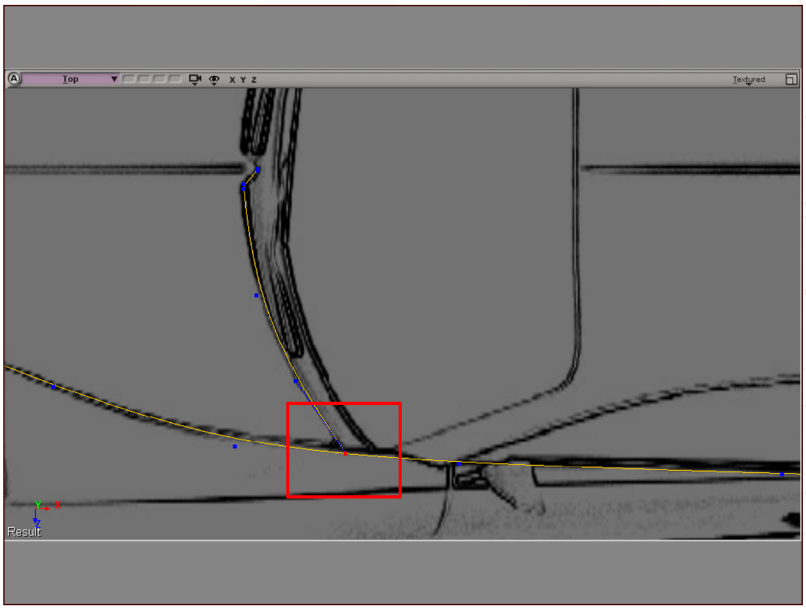


Fig 06

6. Now place the same curve onto the side view and make sure that it fits onto the blueprint in the front view, also (**Fig06**).

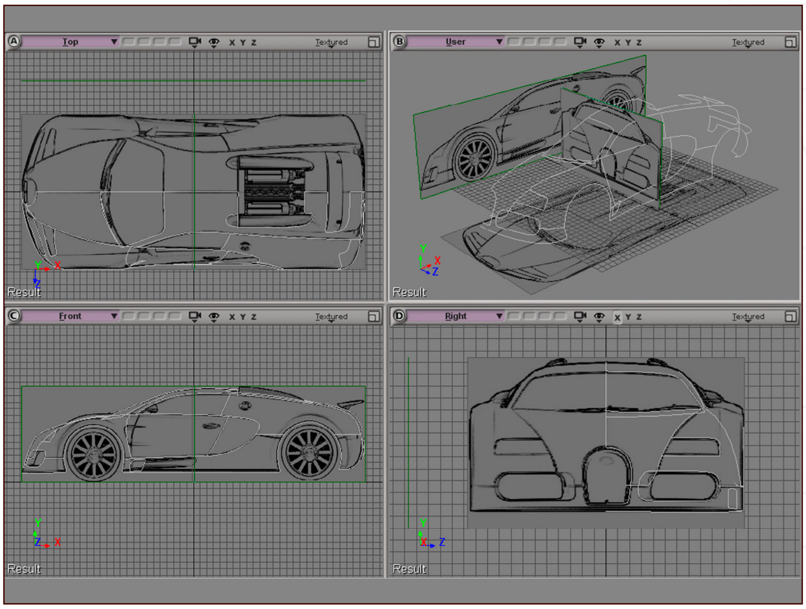
7. Do the same with this curve as we have just done. At the meeting point of the curves, it's worth using the Snap to curves Tool (**Fig07**).

Fig 07



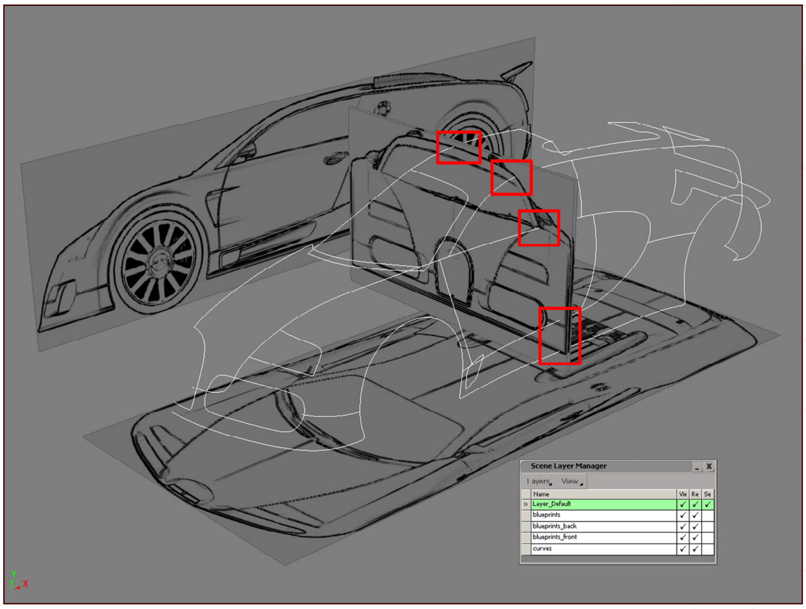
8. After this, drawing the other curves shouldn't be too hard (**Fig08**). Don't forget that these curves are only going to be guidelines for the surface modelling, so the main references are still the blueprints and the photographs!

Fig 08



9. Apply different colours to the curves in the global preferences/scene colours, so you can clearly see everything. Add the cohesive parts into different groups, via Scene Layer Manager, so that you are able to handle the View Visibility, Selectibility, and so on, more easily. We can move the front and back view blueprints into the middle, in order to see where the curves should cut the blueprints (**Fig09**). We can choose from a number of effective modelling techniques, all of which have good and bad points. It's worth getting to know them first because a combination of these techniques will prove the best way to model our car.

Fig 09



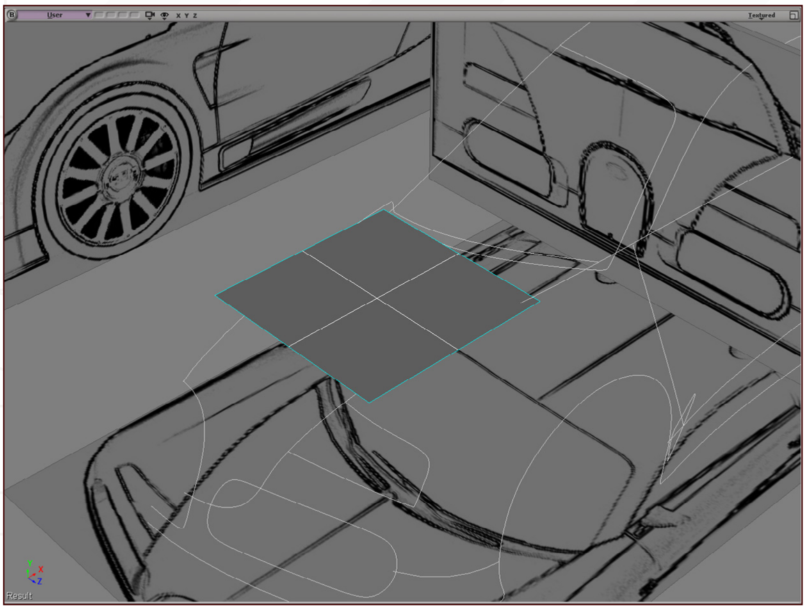


Fig 10

10. Let's start with a grid that we place on the top of the car's trunk (**Fig10**).

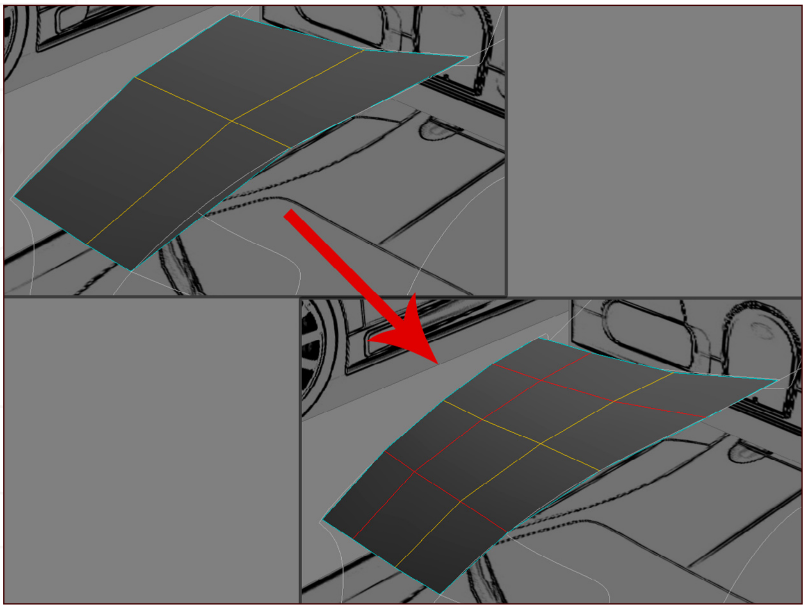


Fig 11

11. After this, using the curves as a guide, we move its points, and with the help of Split Polygon (Model Module > Modify > Poly Mesh) we cut 3 other parallel edges that we then position correctly along with all the points (**Fig11**). Using the fact that our car is symmetrical, we have to create only one half of the car and then we can mirror the other side of the car later. Necessary modifications can be done after that.

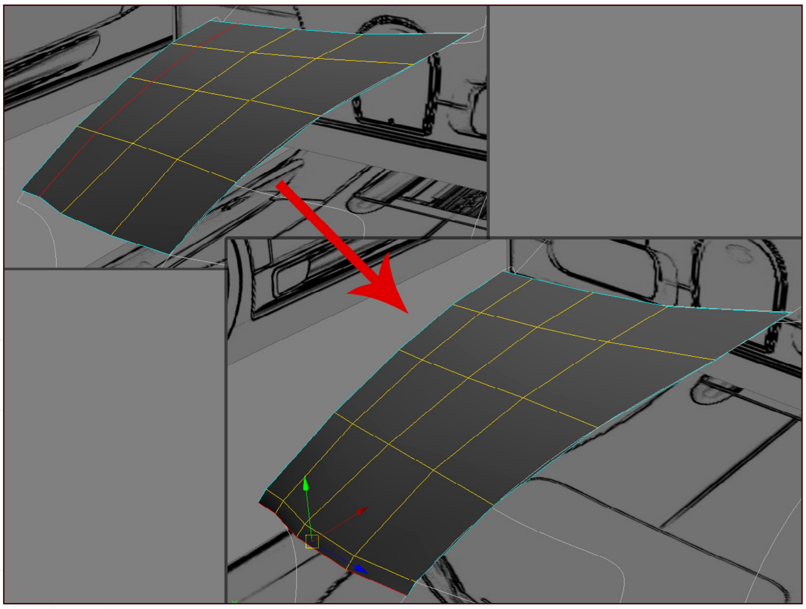
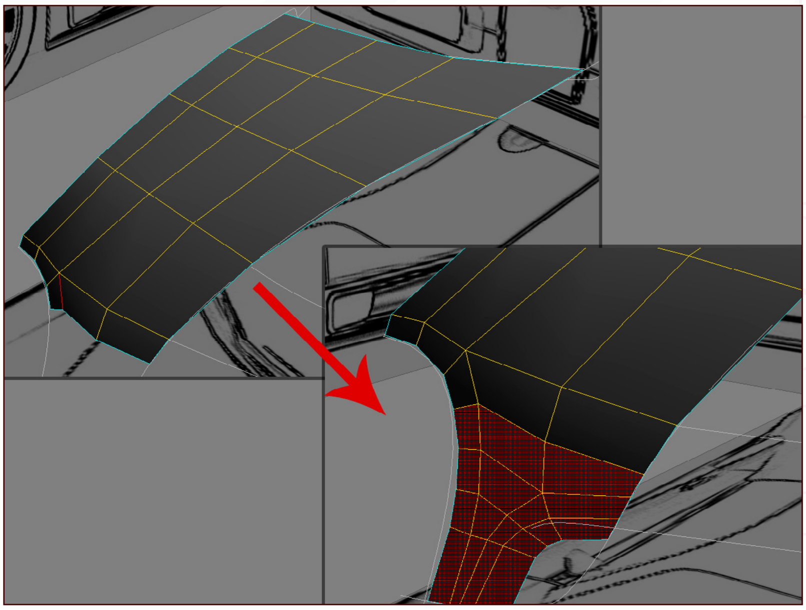


Fig 12

12. Let's cut another edge into the trunk's top and extrude it with the Extrude Along Axis Tool (Model Module > Modify > Poly Mesh) (**Fig12**).

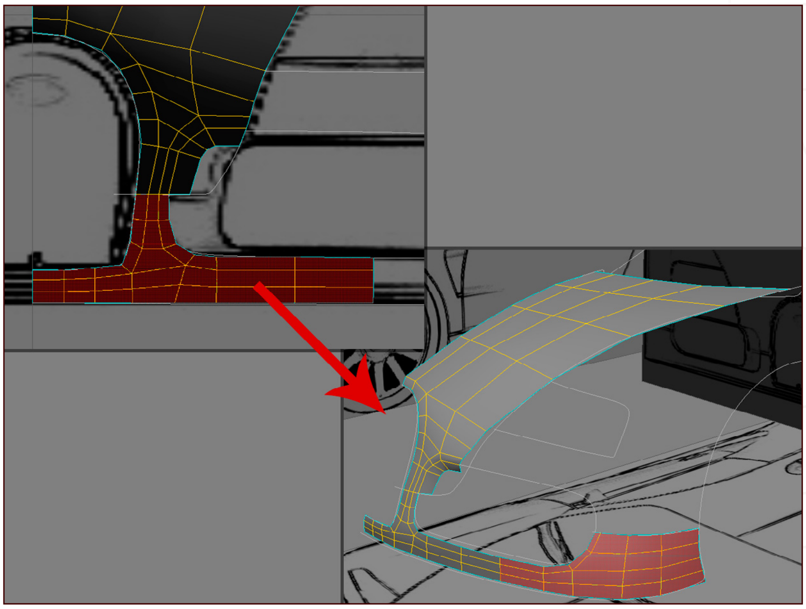
13. Arrange the points and add new edge with the Add Edge Tool and add a new point with the Add Vertex Tool (Model Module > Modify > Poly Mesh) (**Fig13**). After that we can finish the other parts of the car with the tools that I've shown previously. After completing this, the base of the trunk door is ready. We are going to make it smoother later, so for now let's move on.

Fig 13



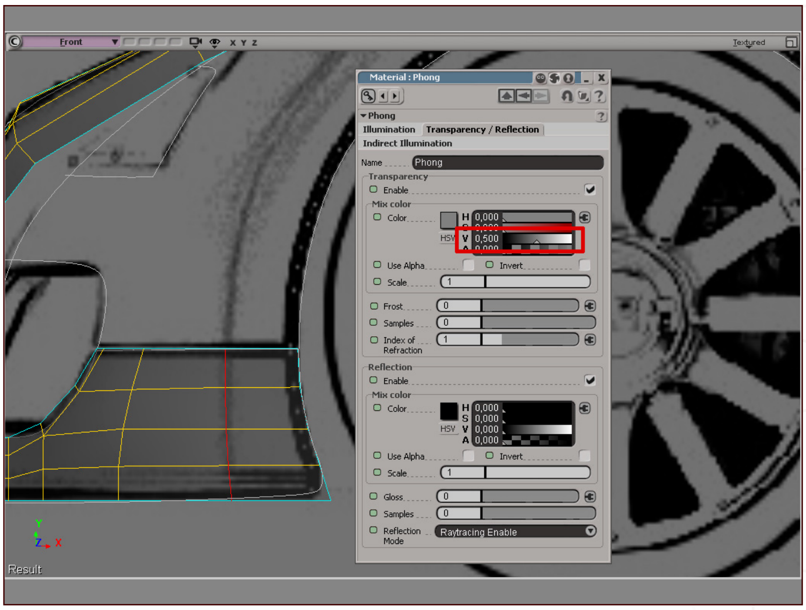
14. Extrude the bottom of the trunk door and move the points to their correct positions, following the same method used to make the base model of the bumper (**Fig14**). Do not try to make it look perfect for now, as we will fix this later on when we make some adjustments.

Fig 14



15. For an easier adjustment we should apply a new Phong material to the surfaces and make them a little bit transparent (**Fig15**).

Fig 15



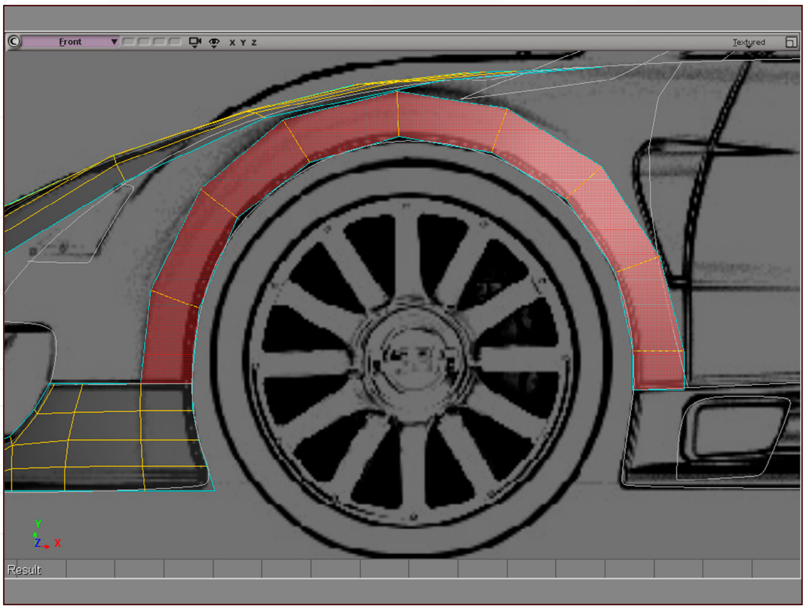


Fig 16

16. Let's get to the Wheel arch. Extrude the first one (**Fig16**).

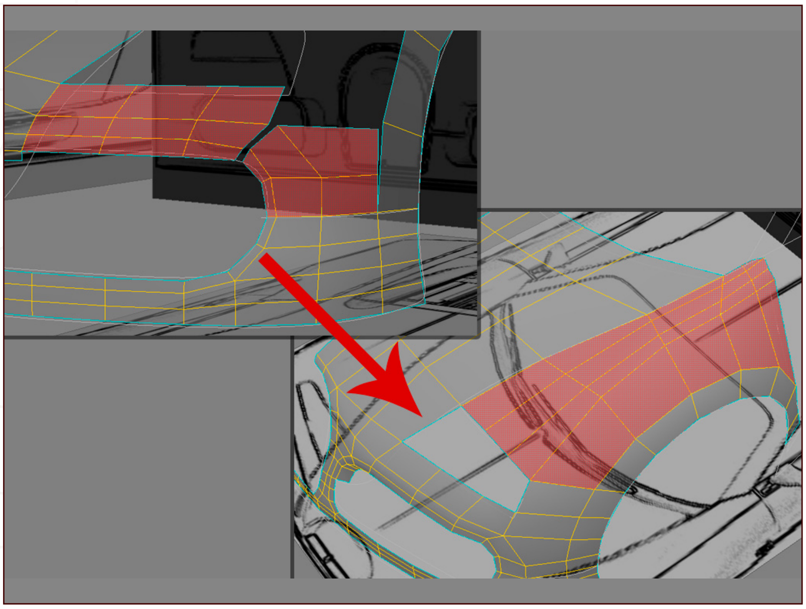


Fig 17

17. With further extrusions, fill out the remaining gaps. Where the surfaces meet, use the Weld Point Tool (Model Module > Modify > Poly Mesh) to weld the points together, and add more detail with extra points where needed (**Fig17**).

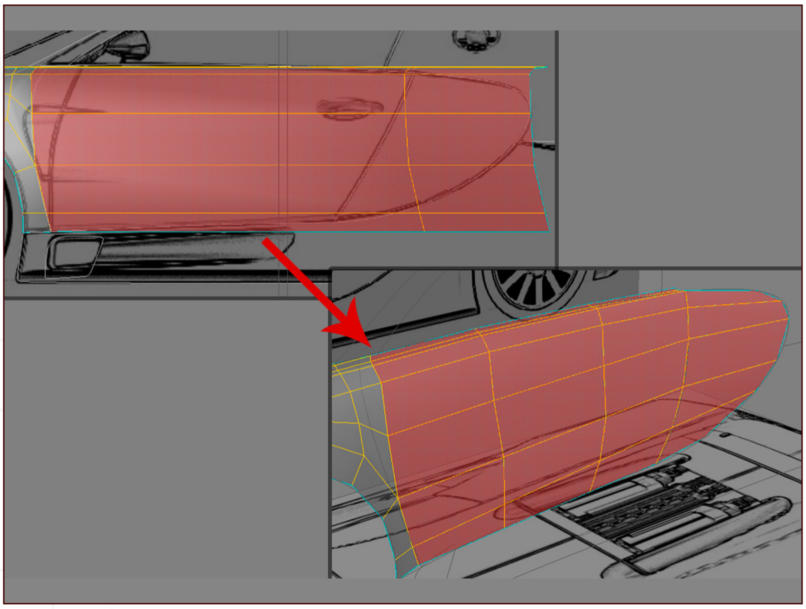
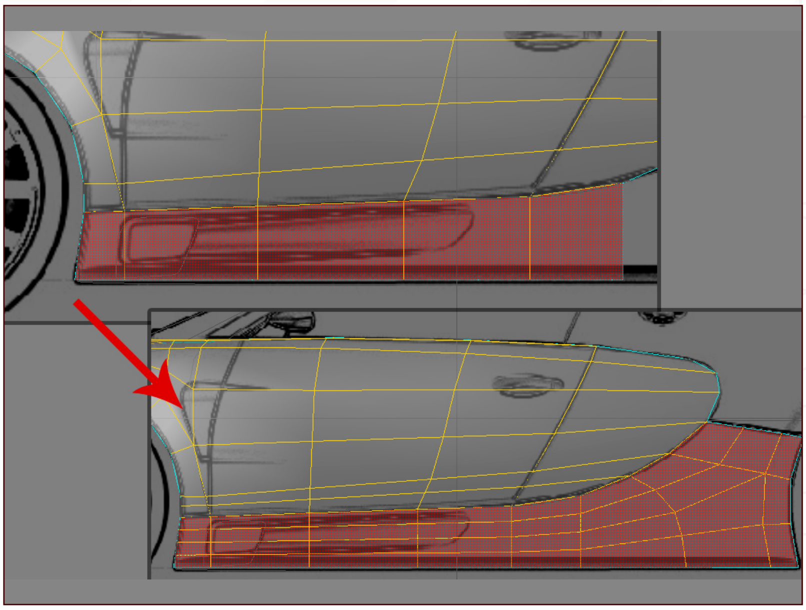


Fig 18

18. Moving on, let's Extrude the door, adding more edges and adjusting them accordingly (**Fig18**).

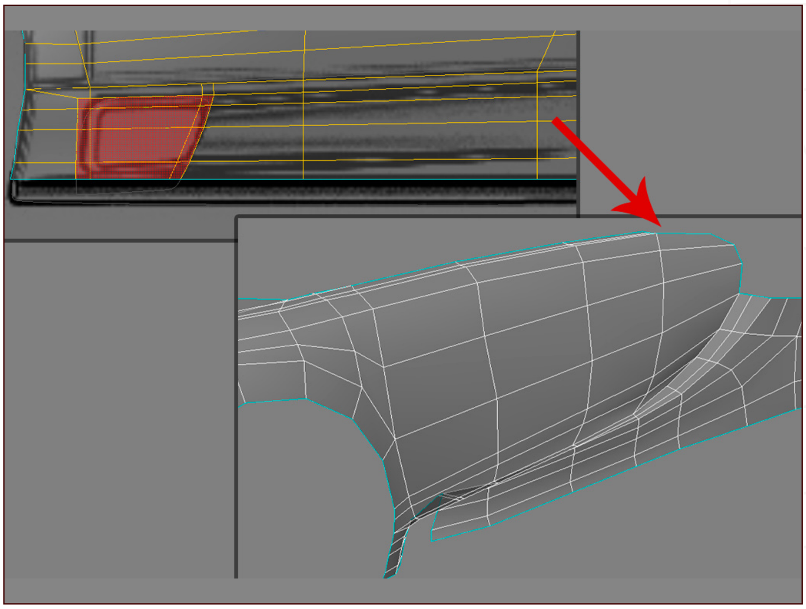
19. Let's make the surface for the air inlet. You extrude an edge and then cut in new edges (**Fig19**).

Fig 19



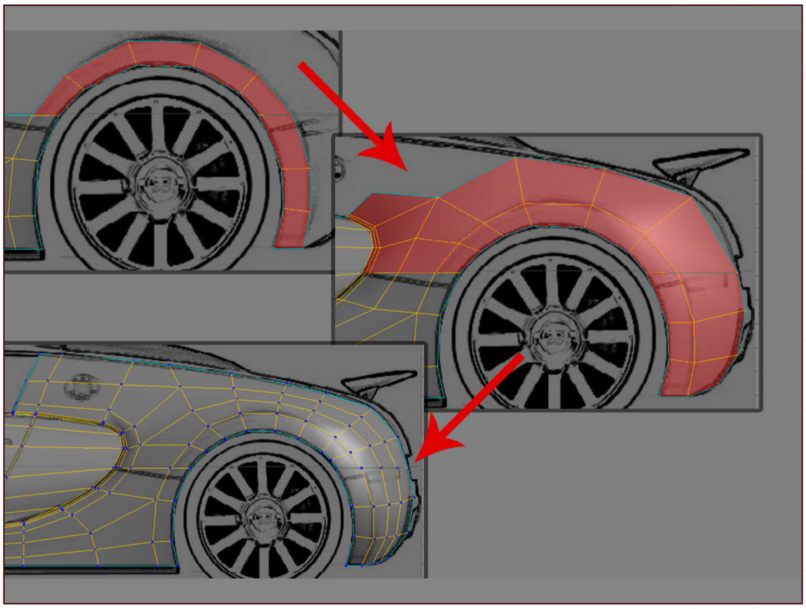
20. Delete the polygon at the position of the air inlet and move the points inward to form the inlet itself (**Fig20**).

Fig 20



21. Let's make the back wheel arch, then go on and make the whole side of the car (**Fig21**). Freeze the body from time to time so the history is emptied, as it will use less memory this way.

Fig 21



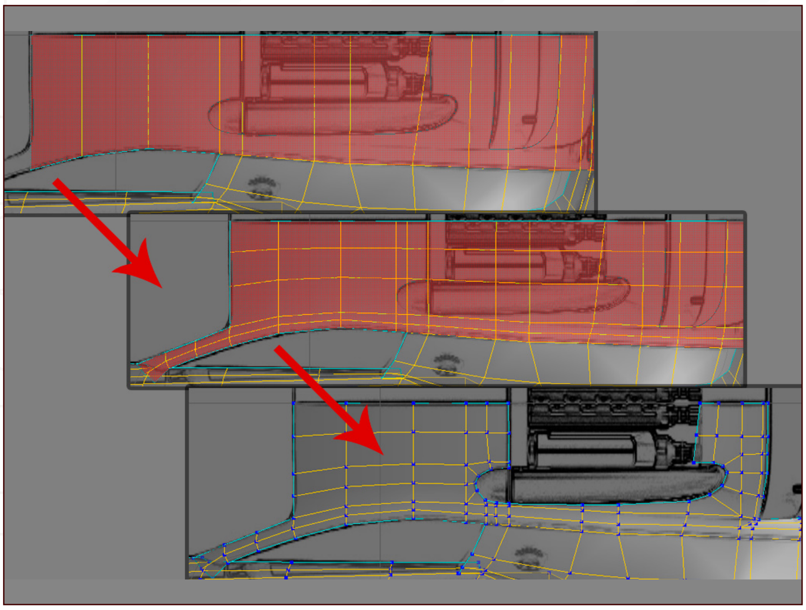


Fig 22

22. Using the methods I've already outlined, let's proceed onto making the roof (**Fig22**).

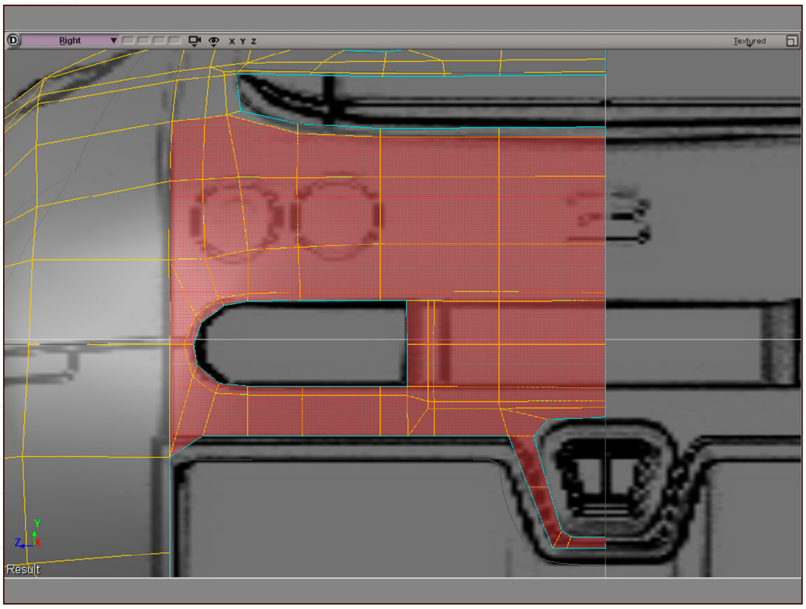


Fig 23

23. Now onto the back of the car (**Fig23**).

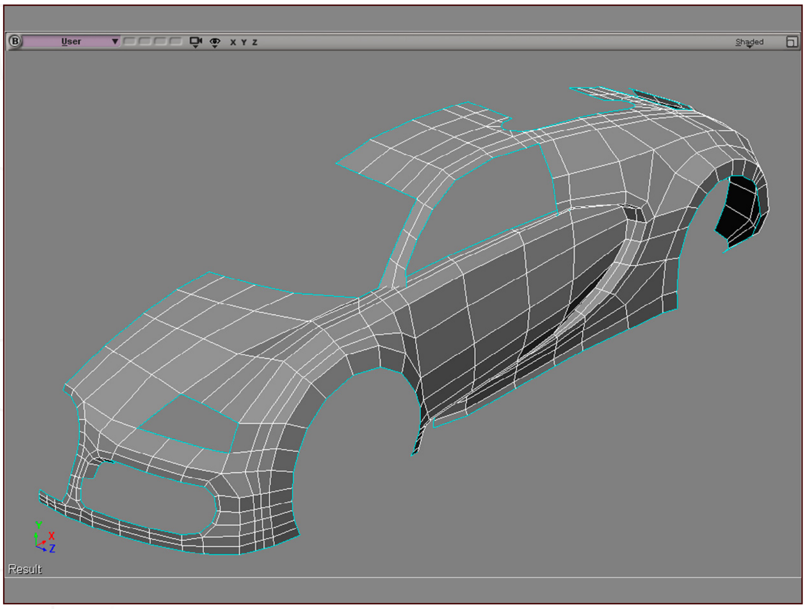


Fig 24

24. At the end, spend some time checking the reference photographs and adjust the parts that need to be modified (**Fig24**).

Well, we have reached the end of the first part. I hope it was interesting and useful to you. Next time we will add more detail to our model and take it to its final stage. Stay with us!

BUGATTI VEYRON: PART 1

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